

## INSIDE DOPE

by GEORGE F. TAUBENECK

Play Ball!  
People Do Marry  
Juke-Box Weddings  
Cities vs. Farm-Life  
Young Men Go West  
The South Yields,  
But Doesn't Lose  
Suburban Realtors Happy  
More Families, But  
Fewer Children  
Ripe for the Townsend Plan  
Change the Rules

## Play Ball!

Baseball season is here again, and for a great many of us that's a signal for a new lease on life. The other evening some Detroit sports writers were talking about old Cy Young, one of the greatest pitchers of all time. Cy recently celebrated his 80th birthday.

He stayed up in the big leagues for 22 years, largely on the strength of a wide-breaking curve ball (*Life* magazine hadn't yet appeared to prove that a curve is impossible!).

Anyway, the story goes that a couple of sports writers were fanning the breeze with Cy recently in Florida. He described the first game he ever pitched, naming the players and reciting the box score. Then he went on to recount the details of the second game, inning-by-inning. So on into the third game.

"Cy," interrupted one scribe, "how many games did you pitch during your lifetime?"

"It was 907 games, although the records only give me credit for 906."

"Sorry," sighed the reporter. "Got some work to do tonight. Guess I can't wait to hear about the other 904."

## People Do Marry

Marriage and birth rates in these United States are due for a drop, say analysts who have studied Bureau of Census reports. These studies will surely be interesting to all marketers.

Let's try to make some sense out of their findings:

After reaching an all-time high during the war years, a decline in the marriage rate had begun by 1945. Statistics for 1942 indicated 13.1 marriages per 1,000 population, or an estimated total of 1,758,000, had been solemnized. Incomplete data for 1945 shows a rate of about 12 marriages per thousand people. (That's still an extraordinarily high figure.)

A more pronounced drop in the marriage rate seems to be in the cards for the years between 1946 and 1950.

The backlog of marriages which were postponed by the depression probably came to an end some time ago; and, this backlog not having been replaced (World War II encouraged hasty wedlock), America's precipitately rising marriage rate now seems due to settle back toward normalcy.

## Juke-Box Weddings

The new group of teen-agers who might become eligible for marriage in the next decade is a depression-deimated group—numbering only 22,301,000, or 7% less than the 1940 figure of 24,079,000 bobby-soxers.

Thus, it would seem that aggregate figures on total current marriages are destined to decline when these youngsters enter the wedding-gown market.

America's presently astounding birth-rate figure is likewise on the downgrade—after having reached its peak in 1943, with 21.5 births per thousand—the highest since 1925.

(Concluded on Page 6, Column 1)

Dismissal Ends  
Plumbing Field  
Anti-Trust Case

CLEVELAND—Anti-trust charges against the last 58 of an original 102 indicted organizations and individuals in the plumbing industry were dismissed by Federal Judge Robert N. Wilkin here on March 31, thus ending what is claimed to be the longest and most costly case in anti-trust law prosecutions.

Judge Wilkin declared that evidence failed to support the charge that the defendants had entered into a conspiracy on a nationwide basis to control the distribution of plumbing goods from manufacturers to wholesalers, to master plumbers, and installed by members of plumbers unions.

"If the evidence tended to show conspiratorial conduct," he asserted, "it was conduct that revealed a number of smaller conspiracies instead of the one overall conspiracy described in the indictment."

Judge Wilkin went on to point out that "a defendant's right to his day

(Concluded on Page 32, Column 2)

Appliance Chain Offers  
Refund If Prices Drop

LOS ANGELES — A "protective price plan," guaranteeing to repay the consumer the amount of any drop in price during 1947 on any appliance or radio he has purchased since April 1, was announced here recently by L. K. Ward Stores, Inc., a chain of appliance stores.

Ward's guarantee reads: "We do hereby agree to refund in cash, unconditionally, the full difference between the purchase price paid and such reduced price as the manufacturer may establish during the year 1947 on any appliance, radio, or radio-phonograph combination you may purchase at any store of L. K. Ward Stores, Inc., on or after April 1, 1947."

(Concluded on Page 32, Column 1)

Finish of Regulation W  
Forecast by August 1

WASHINGTON, D. C.—It was learned on good authority here last week that Regulation W, which puts controls on instalment selling, will be eliminated by Aug. 1.

It is said that if Congress doesn't get rid of Regulation W before it adjourns, the Federal Reserve Board will ask the President to discontinue it.

DETROIT — Sales of Frigidaire products during the last three months of 1946 had reached the average 1941 level, the 38th annual report to stockholders of the General Motors Corp., covering the year 1946, announced recently.

The report declared that sales of Frigidaire appliance products—electric refrigerators, ranges, and water heaters—were approximately the same in 1946 as in 1940 and were 80% of the 1941 total.

In the commercial and air conditioning fields, domestic sales volume was approximately the same as in 1941, it asserted.

CHICAGO—In the current discussion over the adequacy of appliance dealers' discounts, only one thing seems certain—there is no unanimous opinion among either the dealers or the manufacturers as to just what the "right" discount should be.

Not all of the dealers, for example, are on the bandwagon for greatly increased discounts. This was demonstrated in the results of a poll taken by The Harry Alter Co., distributor for Crosley and other appliances in this area. Question asked in the poll was, in effect, "should appliance dealers take short discounts and keep list prices low or should they have long discounts and higher list prices?"

Of the 116 dealers who answered in the poll, 59 voted for better discounts with higher list prices, and 57 voted for current discounts at present prices.

(Concluded on Page 29, Column 2)

Summer ASHVE  
Meeting Set for  
Coronado, Calif.

CORONADO, Calif.—The semi-annual meeting of the American Society of Heating and Ventilating Engineers will be held June 1 to 4 at the Hotel del Coronado in this San Diego suburb, R. A. Lowe, general chairman for the meeting, has announced.

The tentative program calls for council and committee meetings on Sunday, June 1; three technical sessions during the mornings of June 2, 3, and 4; and inspection trips, sports, and other entertainment activities during the afternoons, according to Mr. Lowe.

The Hotel del Coronado, which is located on a peninsula overlooking the

(Concluded on Page 32, Column 1)

Norge To Market 5  
Water Heater Models

DETROIT—The Norge division of Borg-Warner Corp. last week announced its entry into the electric water heater business with the introduction of five models of the product into the company's line of household appliances.

In making the announcement, M. G. O'Hara, vice president and director of sales, disclosed that deliveries are now being made to distributors throughout the nation and that dealer sampling should be completed within a relatively short period.

The new electric water heaters are being offered in five sizes, with gallonage capacities of 80, 66, 52, 40, and 30. They are of the round, upright type, are finished in easily

(Concluded on Page 29, Column 1)

## Frigidaire Appliances

## Reach '41 Sales Level

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Dealers Split Evenly on Long vs. Short  
Discount, Distributor's Poll Shows

"The results are not conclusive and prove only one thing—that under the American capitalistic and free enterprise system, there can be no regimentation of ideas."

Replies to the letter sent by the National Electrical Retailers Association to appliance manufacturers asking them how they stood on the "functional 40%" discount which a committee of the association recommended, revealed that while many of the firms contacted were giving 40% or better, many were not.

The manufacturers who defended their shorter discounts, Nera reported, did so on the basis of two arguments—the increased cost of distribution and production, and the adherence to OPA discounts established during the war. Others stated that the matter of trade discounts rested entirely with their distributors.

(Concluded on Page 29, Column 2)

Utilities Hear Heat Pump May  
Go Into 25% of New Homes

## Liquefied Petroleum Gas Competition Treated 'Serious'

By John Sweet

CHICAGO—Realizing that the industry will soon be face-to-face with a buyers' market, a record number of public utility personnel and others attended Edison Electric Institute's 13th annual sales conference at the Edgewater Beach hotel here to learn what is being and should be done about it.

A new attendance record was assured when more than 650 registered by the beginning of the second day. Chairman Ralph P. Wagner said this figure exceeded the total registration at any previous meeting.

During sectional conferences April 1 and general sessions April 2 and 3, speakers advised their listeners that the industry should:

1. Get its sales forces ready for real action.

2. Aggressively promote all-electric living to meet the challenge of liquefied petroleum gas.

3. Aid in the development of three relatively new major markets for increased electrical consumption—the heat pump, food freezing, and television.

4. Intelligently cultivate the fertile farm market, especially through research aimed at new uses of electric energy.

5. Learn the economic ways to increase existing productivity.

6. Support the industry-wide planned lighting program.

7. Promote the free enterprise system whenever and wherever possible.

## PREDICTS HEAT PUMP SALES

That interest in the heat pump is high was evident from the large audience which packed the hotel's grand ballroom to hear A. C. Crandall, vice president of Indianapolis Power & Light Co., discuss the subject. He talked on "The Heat Pump As a Load Builder."

Mr. Crandall estimated that 25% of the new homes, valued at \$9,000 or more, to be built in Indianapolis over the next five years will use heat pumps. Another 10% of now-existing homes in that city will buy pumps during the same period, he predicted, making a total of 3,480 estimated installations.

These forecasts, Mr. Crandall explained, were made on the assumption that a unit will be available in fair supply within the next 12 to 18 months at an installed price not too far above that of other types of automatic heating equipment. It was further assumed that the price will be considerably lower than the combined cost of two automatic units—one for heating and one for cooling and air conditioning.

## RESULTS WITH 3-HP. UNIT

The basis for his prediction, Mr. Crandall said, was two years' experimental work with a heat pump installation and extensive study of his company's area. He presented detailed data on the performance of the 3-hp. ground-to-air pump installed in 1945 in the six-room home of R. C. Webber, then supervisor of the company's appliance service department.

Mr. Webber designed, constructed, and installed the pump, which takes heat from the earth through buried coils containing a refrigerant. The material cost only of the unit was reported as about \$500.

(It is understood that Mr. Webber, who is now on a leave of absence from Indianapolis Power & Light to develop the unit, has applications for patents pending on the ground-coil operation. It is also understood that Terra Temp Co. in Indianapolis has taken an option on the Webber pump.)

Mr. Crandall pointed out that operating costs of the heat pump should not be a major point of sales resistance, considering its advantages to the home. Year-round energy

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cost in the company's area was estimated (the unit was not operated during the summer of 1946, except for short periods, because change-over valves were not available) at \$14.25 per month.

The heat pump often will provide hot water at a cost less than that of other heating methods, he declared. "No other domestic appliance, at a comparable stage in its development, has stirred such a volume of public interest as the heat pump," Mr. Crandall said. "This is understandable because it represents a truly revolutionary means of complete air conditioning in the home."

"When we remember that each installation means several thousands of kilowatt hours used each year, or several times the consumption of all presently used home electrical appliances, we can begin to visualize the tremendous effect of the heat pump on the electric utility industry," he stated.

(A more detailed report of Mr. Crandall's talk will be published in a later issue of the NEWS.)

## HEAT PUMP PROMOTION REPORT

A heat pump report stressing the sales and promotion angle will be ready in 30 to 60 days, E. A. Freund, chairman of the indoor climate committee, informed the residential and home service section. He said the committee believes the heat pump merits consideration now by the industry.

The threat of liquefied petroleum gas, particularly in the rural and suburban market, occupied the attention of four speakers on the residential section's program, and also was cited in other conference talks. Noting the "tremendous" increase in domestic use of LP gas, the speakers called for immediate and united effort to cope with this "serious" competition.

Speaking as chairman of the electric range section of the National Electrical Manufacturers Association, J. R. Poteat declared that the liquefied petroleum gas industry has already taken more than a billion dollars in revenue away from electric service companies. He said domestic LP gas customers have grown from 5,000 in 1926 to 3,000,000 in 1946, a 600 times increase in 20 years.

## HOW LP GAS HITS

"Domestic use of LP gas almost doubled from 1942 to 1945 while we laid off selling electrical appliances," he asserted. "During this time, LP gas producers spent \$21,000,000 more than the electrical industry in advertising their product."

"This competition has already determined the time for action—it is no longer a matter of choice with us. . . . A plan of action to give direction to our selling is essential to mobilize the power of this great industry toward electrifying every home and farm no matter how humble," he said.

(Mr. Poteat's talk is reported more fully on page 2.)

Details on the inroads of LP gas in particular areas and what is being done about it were recited by H. G. Isley, Carolina Power & Light Co.; H. H. Brenan, Pennsylvania Power & Light Co.; and O. R. Doerr, Pacific Gas & Electric Co. Statistics they presented indicated that use of this form of energy is growing steadily in their territories.

Mr. Isley said LP gas is "invading the field on a major scale" and reported his company is surveying present users to determine their attitude on it. He claimed these users could have been sold electricity by a trained sales organization backed by the necessary volume of appliances.

The need for greater production

(Concluded on Page 4, Column 3)

## Wholesalers Group Has Prizes In New Type of Contest

NEW YORK CITY—The National Association of Wholesalers announced yesterday a \$1,500 prize contest for outstanding articles on wholesaling generally, or any major aspect of wholesaling. A first prize of \$500 and 23 additional prizes will be awarded following the closing of the contest Oct. 30.

At a luncheon given at the Waldorf-Astoria in New York City to inaugurate the contest, and attended by leading teachers of marketing and distributive education, Joseph Kolodny, president of the National Association of Wholesalers, pointed to the recent formation of the Association and the increasing determination of wholesalers to focus public attention on the indispensable role of the wholesaler in the nationwide distribution of the goods of mass production.

"We are especially interested in attracting the students in our colleges to the opportunities for a successful career in the wholesale trades," said President Joseph Kolodny. "We hope many of them will enter this competition and that this study of distribution will develop a lasting interest in this field."

President Kolodny also outlined the Association's plans for research in wholesaling, including the setting up of a research fellowship in one of the leading universities. Plans for this fellowship are now in a formative stage and colleges interested in arranging such a fellowship are invited to contact the National Association of Wholesalers in New York City.

The judges of the contest will be selected by the National Association of Wholesalers in cooperation with the American Marketing Association

and will be announced shortly.

The award contest is open to any one except members of the Association, their families, and employees. A number of teachers and employees of government in related fields have expressed a desire to compete. Manuscripts should be about 5,000 words in length and copies of the rules of the contest may be obtained from Chester C. Kelsey, Executive Vice President, National Association of Wholesalers—200 Fifth Ave., New York City.

## Supply, Prices Easier On Cold Rolled Steel

NEW YORK CITY—The supply and price situation on cold rolled steel in the New York area has eased up considerably, according to reports here. A number of plants have been able to get most of their requirements in a reasonable length of time.

Prices are reported to have dropped sharply to \$135 per ton for cold rolled steel, with plants refusing to bid against each other or pay premium prices for spot deliveries. Most companies have returned to buying only from normal sources.

Other items such as galvanized steel, large pipe, hot rolled sheet, and electrical sheets, remain scarce, according to reports of plant executives.

### Burnett Plant Engineer For Nash-Kelvinator

DETROIT—E. W. Burnett, formerly plant manager at Kenosha, Wis., has been appointed general plant engineer of Nash Kelvinator Corp., Ray A. DeVlieg, vice president in charge of manufacturing, has announced.

In his new position, Mr. Burnett will direct activities in both the automotive and electrical appliance plants, it was said.

## Why the Electrical Appliance Industry's Chances for the Farm Market Are Endangered, and What Can Be Done

Following are excerpts from a talk given by J. R. Poteat, manager of the range and water heater division of General Electric Co. and chairman of the electric range section of the National Electrical Manufacturers Association, during the recent 13th annual sales conference of Edison Electric Institute. Mr. Poteat calls attention to the mounting competition, particularly in rural and suburban markets, from liquefied petroleum gas and the necessity for immediacy in reestablishing electrical superiority in these markets.

The "Report to Utility Executives" brochure which was sent out last spring confirmed to us that in the rural and suburban market to which electrical service had been, or will be extended as a matter of course, the average usage of electricity is twice the use in the urban domestic market.

It also showed that the maximum development of the possibilities in this market was being retarded by action on the part of purveyors of other forms of energy for cooking—specifically LP Gas.

Conditions such as this were found. In one state 85% of the homes are wired for electricity. But, the number of customers using electric ranges is no greater than those in wired homes who use liquid petroleum gas for their cooking.

A utility in another state surveyed 2,500 new customers on new electric lines and found approximately half of them cooking with liquid petroleum gas. They set about immediately to do something about it.

### What Does a Range Add to Power Cost?

A well known and large electric service company recently studied the extent of electrical intelligence of their rural and suburban customers. In surveying 28,000 homes, they found that more than 75% of them believed that it costs more to cook with electricity than with liquid petroleum gas.

A small number of the people holding this opinion offered estimates on the cost of electric operation of major kitchen appliances. Their average guess on the cost of cooking by electricity was \$5.95 per month. 46% of these estimates exceeded \$6.00 per month.

In other words, in spite of promotional campaign carried on for the past 15 years (which, however, had been curtailed during the war) and in spite of continued rate reductions, these domestic customers still greatly exaggerate the cost to operate major electrical appliances.

The actual cost of electric cooking in this territory is approximately \$2.00 per month.

In this same area a total of over 38,000 users of liquid petroleum gas were asked whether or not they had received any information on the use of electricity, prior to the time that they had purchased liquid petroleum gas equipment. Only 16.6% replied in the affirmative.

### Electricity NOT Preferred

The research department of a chain of farm papers asked subscribers in five different states to indicate their purchase intentions. Some striking facts were revealed.

In the Dakotas 47% of the respondents planned to wire the home while only 13% planned to buy an electric range and 30% would install LP Gas for cooking.

In Nebraska 32% would wire the house, 16% buy an electric range, and 17% LP Gas stoves.

In Minnesota 31% would wire the house, 14% install an electric range, and 18% an LP Gas range.

What is the "Go All Electric" program? The "Go All Electric" program is an activity, designed to promote and create an acceptance for a single source of energy—electricity—for use in homes and on farms.

Briefly, it consists of a well organized, ready to use campaign plan with all of the devices the electrical industry knows so well how to use, including newspaper advertising, radio spot announcements, direct mail pieces, counter cards, 24 sheet posters, etc.

There are some additional sales

tools which are unique to this program. A sound motion picture sponsored by this activity has been prepared by one of the national magazines. This picture is entitled, "Singing Wires."

In addition, for the first time a handbook for electrical appliance salesmen has been prepared. Due to the shortage of paper and the difficulties of publishing, this material which has been ready since November will not find its way into the publisher's schedules until summer. However, this book provides the ammunition necessary to answer questions not only relative to the electrical way of living, but comparative to other methods of cooking and water heating, refrigeration, and lighting, and serves as a very excellent reference book, which should be in the hands of salesmen everywhere.

\* \* \*

### How To Win Back the Market

People fail to use electric ranges and water heaters and other electrical services to the full in all electric areas; namely, they have not heard and do not know the truth about electrical appliances and electrical uses. We have not been telling our story while competition, offering a service admittedly superior to coal, wood, or kerosene, has been aggressively at work selling.

Even so, if we quickly resume our accustomed virile selling we can retain this market. Our LP Gas friends have not waited for an adequate supply of LP Gas ranges before promoting their product. In the last quarter of 1946 the rate of production of electric ranges was twice that of LP Gas ranges.

Of the 38,000 users mentioned as having liquid petroleum gas, a moment ago, it isn't a case of locking the door after the horse is stolen, for the survey showed that 32% contemplated the purchase of major electrical appliances, and of this group  $\frac{1}{2}$  intended to purchase a range or stove for cooking, and  $3\frac{1}{2}$  a water heater.

They were by no means determined to use these on their existing form of fuel. A good percentage were actively considering the purchase of electrical appliances to do these jobs.

### Don't Stand For Talk of 'Lack of Capacity'

But you say our margin of electrical capacity is too small for us to add these heavy energy using devices to the lines. May I point out that new generating capacity plans for 1947 amount to about 3 million kilowatts and in 1948— $4\frac{1}{2}$  million kilowatts, and while this is being installed month by month, the electrical appliance industry finds itself unable, because of shortages of raw material, to produce at capacity.

And as for copper and transformers, these items should certainly become available faster than the generating equipment. This same material shortage faces all industry, so that the industrial load at least for the balance of this year, is likely to level off.

This increase in capacity in 1947 will operate more than 30 million additional refrigerators, enough to supply every domestic customer with a new refrigerator. It will operate  $4\frac{1}{2}$  million new electric ranges or enough to double the present number in use. It will provide enough capacity for lights, washers, irons, toasters, radios, and a hundred other appliances in 15 million new homes.

The appliance industry under present conditions of supply is unable to produce major appliances in anything like these quantities. The capacity to serve will surely grow at many times the rate of the demand created by the sale of ranges, refrigerators, water heaters, etc. Your engineers have been so in the habit of operating with a 30% margin of capacity that a 10 to 12% margin frightens them into a halt in selling.

Selling must not stop. Here and there conditions of tight energy supply will undoubtedly exist to be assisted by the magnificent system of inter-connections.

But remember more heating load, which is the point of immediate attack, can be served from a given installed capacity than motor load and the diversity which integrates a range at the power plant at 600 to 700 watts and the water heater at 50 to 100 watts, further enlarges the sales opportunity in these electrical consumer goods.

## The VERTICAL FOOD FREEZER with shelves

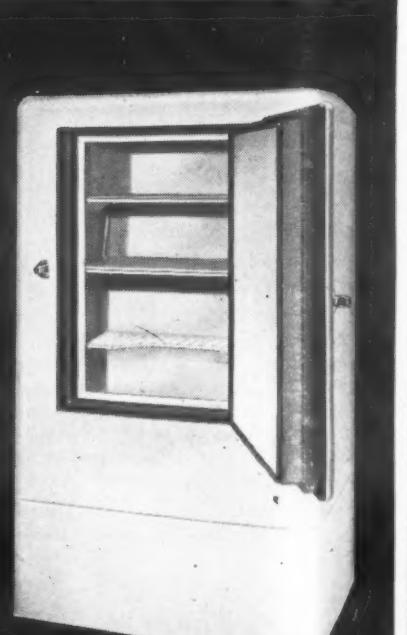
### BENBAR

14 cubic feet of space holds 500 to 700 lbs. of food made in two sections for easy handling

steel construction  
4" fiberglass insulation

three step door construction  
two cold plate shelves & large backplate for quick freezing

adjustable wire shelf  
deep well for bulky foods



### THE PREFERRED TYPE FREEZER some dealerships are still available



manufactured by  
**BEN BAR**  
sales, inc.  
1025 n. 3rd st., milwaukee 3, wis.



## Dry Beverage Cooler

Beautiful stainless steel and polished aluminum outside with polished aluminum interior. Heavy duty fin-type coils, designed to give fast cooling and less frosting. Rugged construction, first quality materials throughout. Stainless steel lids slide away or lift out. 8-inch utility shelf. Removable dividers inside. Toe space under edges.



### MARVEL Quick Freeze



#### INSULATION:

5 inches thick

#### CAPACITY:

12 cubic feet

#### SIZE:

72 inches long  
30 inches wide  
34 inches high

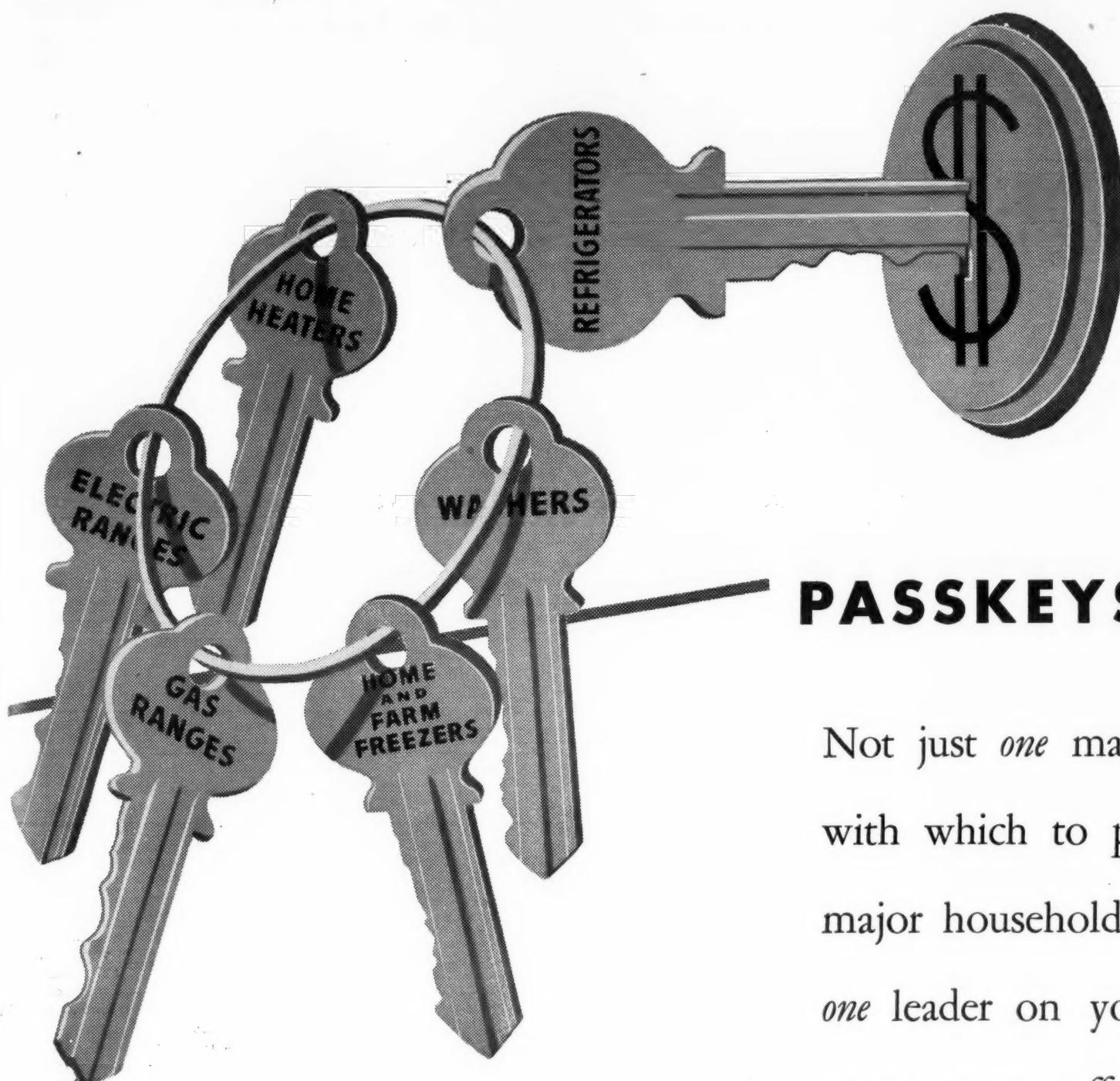
#### COMPRESSOR:

$\frac{1}{4}$  Horsepower  
heavy duty motor

De Luxe model shown is stainless steel throughout. Other models have stainless steel tops with baked on white enamel or polished aluminum sides. Smooth inside surface for easy brushing off of frost. Large lid—23 x 45. Toe space.

### DEALERS WANTED

W. ALLEN ROGERS Industries  
BOX 272-AC  
DEMOPOLIS, ALA.



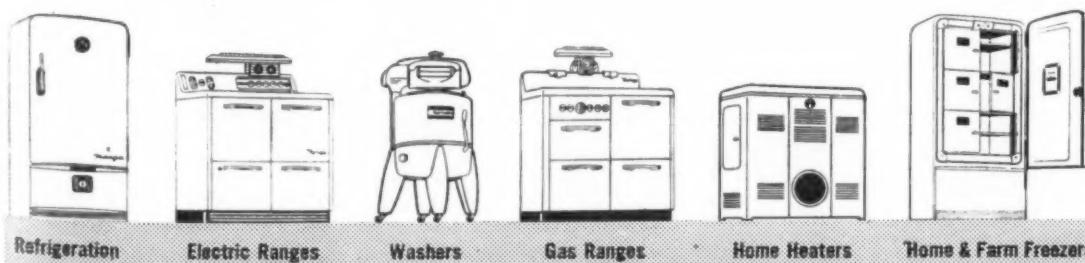
Products of  
**BORG-WARNER**  
ENGINEERING  
**BW**  
PRODUCTION

## PASSKEYS TO PROFITS

Not just *one* major household appliance with which to please customers, but *six* major household appliances . . . not just *one* leader on your floor with which to attract store traffic, but *six* leaders . . . not just *one* big-ticket item with which to build your future and your fortune, but *six* big-ticket items! That's the Norge franchise story. Six lines, six leaders. "Passkeys to profits" we call them, and *passkeys to profits* they have proved to be for Norge dealers in every state in the union.

**The Best Dealer in Town Sells NORGE!**

Norge is the trade-mark of Norge Division, Borg-Warner Corporation, Detroit 26, Michigan. In Canada: Addison Industries, Ltd., Toronto, Ont.



SEE  
**NORGE**  
BEFORE YOU BUY

## STYLED TO SELL

FROZEN FOODS



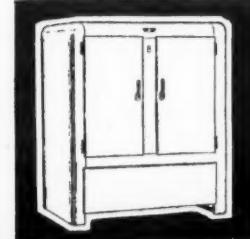
## 1947 SALES MASTER

A modern open top cabinet with full length mirror, lighted plexiglas sign. Ample refrigeration capacity, easy to service. Well insulated. QUALITY BUILT. Now available.

Wells & Brunell Corp.  
P. O. Box 1555 Tacoma 1, Wash.

Coldway  
CUSTOM FREEZER

## YOUR BEST BET...FOGEL

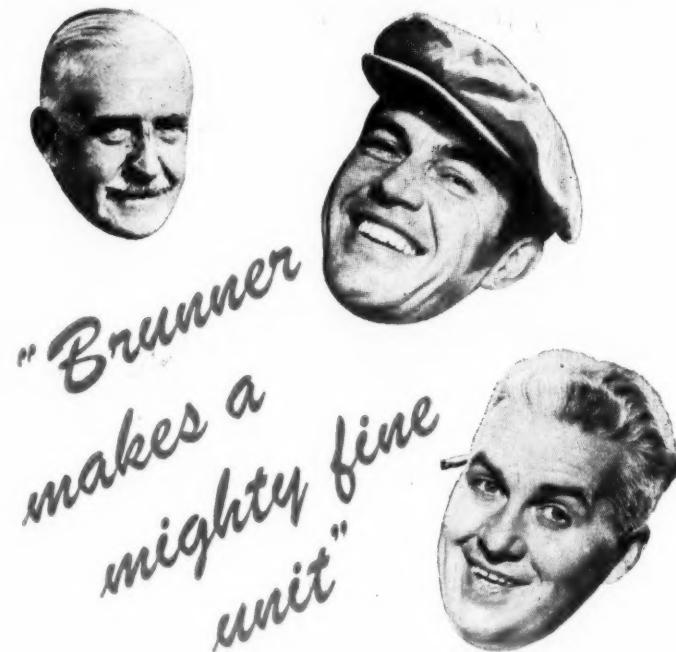


RECOGNIZED AND RESPECTED FOR  
ALMOST HALF A CENTURY. NOW  
BETTER THAN EVER

INTERESTING DISTRIBUTOR  
PROPOSITION. WRITE NOW!  
A FEW TERRITORIES STILL  
AVAILABLE

FOGEL REFRIGERATOR COMPANY Since 1899  
5400 Eadom St., Philadelphia 37, Pa.

## THOUGHTS FOR MERCHANTISERS



This is the type of sincere compliment you hear in the trade...the direct result of Brunner's years of experience in application...continual advancements in design and construction.

Today, refrigeration condensing units are measured by the standards set by Brunner. Now available are models ranging from  $\frac{1}{4}$  to 25 horsepower in air or water-cooled types adaptable to just about every domestic, commercial and industrial application.

Present customers are the first to say that anyone concerned in the sale, installation or use of condensing units can ill afford to overlook the advanced features that Brunner can contribute toward dependable, economical, low-maintenance refrigeration.

For your convenience, Brunner direct factory representatives are located throughout the United States. Write us for the nearest address.

BRUNNER MANUFACTURING CO.  
Utica 1, New York, U.S.A.

AIR AND WATER COOLED MODELS  
 $\frac{1}{4}$  HP. TO 25 HP.



## EEI Gets Story on Heat Pump, New Markets--

(Concluded from Page 1, Column 5) was also emphasized by Mr. Doerr, who said the competition can be met "if we get ranges and water heaters."

A somewhat unusual event in this connection was the appearance on the first day's general session program of Howard D. White, executive vice president of the Liquefied Petroleum Gas Association. He reported that 1,425,000,000 gallons of LP gas were sold last year and that domestic consumers number 3,500,000.

While acknowledging that the groups are competitors, Mr. White said he saw no reason why they cannot cooperate on the broader phases. He said the first duty of both is to see that they can retain the right to sell against one another "or all will be lost."

Mr. White told his listeners he couldn't believe they are "very much worried about our operation."

## HOW MANY HOME FREEZERS?

Another field for increased electrical consumption, quick freezing, was discussed by E. W. Williams, publisher of *Quick Frozen Foods* magazine.

Mr. Williams said the greatest food revolution of the next 10 years will be the gradual conversion of most foods into preservation by quick freezing. He predicted a production of 40 billion pounds of frozen foods per year by 1955, as compared with less than 2 billion pounds during 1946.

The rapid growth of the frozen foods industry, he declared, is evident from the fact that the number of locker plants has increased from

1,500 in 1937 to a present total of more than 8,000; that more than 45,000 retail stores are now equipped to handle frozen foods; and that well over 100,000 home freezers are now in use.

He estimated that 1,000,000 home freezers will be sold during the next two or three years.

Reynold R. Kraft, general sales manager of television for the National Broadcasting Co., outlined the commercial opportunities in a third field—television.

Mr. Kraft predicted that a new era in television will begin this year. He forecast a production of 400,000 television receivers of all models during the year, as compared with 10,000 in 1946.

The conference was told that 11 commercial television stations are now operating in eight markets and 40 construction permits have been granted for new stations. The Federal Communications Commission, he said, has made provision for television in 140 population centers.

One major difficulty noted is the securing of program material. Mr. Kraft said a full year's production of Hollywood movies would hardly program a television station for a week.

Cost of receivers, he stated, runs from \$175 to \$2,500, with the average in the neighborhood of \$350.

Opening the conference general sessions earlier, Chairman Wagner called attention to the fast-approaching buyers' market "where selling will again be a must for every sale."

"We are practically the only industry which can point to decreasing prices for our service during the war and the ensuing period of price inflation," he said. "Our sales have increased beyond our expectations, and there is some evidence that our industry has been lulled into an increasing sense of endless prosperity by this lush period."

"Sales forces," he cautioned, "cannot be built overnight. The warning signs of coming changes are even now so sharp that we should be prepared to meet the day when sales will be demanded."

## HOW TO SELL THE FARMER

Discussing "The Farm Market and How to Reach It," Paul E. Miller, director of agricultural extension at the University of Minnesota, told the conference electrical equipment, including refrigeration products, has a big appeal for the farmers. Their demand is increasing and they have ample resources with which to buy, he noted.

"Bright as is the picture, it is by no means a sellers' market," he cautioned. "No group of people are more price conscious than farmers, when they can wait, if necessary, for more favorable conditions under which to make desirable improvements."

Farmers want facts on equipment, he stressed, particularly on its ability to withstand hard wear. He advised manufacturers to test their products thoroughly before putting them on the market and dealers to be familiar with equipment they sell,

as well as with the farmer's problems.

"Dealers who can furnish intelligent, honest, and quick repair service at reasonable cost will have a special appeal to farmers," he added.

Similar advice was offered by L. J. Fletcher, director of training and community relations, Caterpillar Tractor Co., who spoke at the farm section luncheon. He listed these points as important in selling to farmers:

Know your product, learn the practices and terminology of the area, call on people who use your product and get acquainted, develop a genuinely friendly attitude be interested in your story and avoid "canned" talks, and use pictures whenever possible.

## AIR CONDITIONER PRODUCTION

In a talk to the commercial sales section on the future of air conditioning, I. C. Baker, of Chrysler Corp., said air conditioning has definitely passed through the experimental stage into the acceptance period. Wide demand, he declared, is now established, with the residential field promising to be the largest.

He claimed most manufacturers are from three months to a year behind demand.

During the talk, Mr. Baker showed slides of installations of packaged conditioners in various types of buildings.

In an earlier talk to the residential and home service section, Gerald Hulett, vice president in charge of sales for Electromaster, agreed that "the buyers' market has arrived."

Although acknowledging that "it means that we've all got to revise our selling procedure—and quickly" and that "salesmen will have to go to work for a change," Mr. Hulett said he is unworried over the outlook "because I have faith in the salesman. . . . A buyers' market never scared a real salesman," he said, "because this country has been built up for 175 years in a series of buyers' markets. . . .

"Admittedly, the buyers will be selective, critical, and price conscious. But is that bad? All that offers is a challenge."

## WHAT IS THE SALES POTENTIAL?

Turning to the sales potential, Mr. Hulett termed "just plain silliness" the view of some that 70% of savings are in the hands of 3% of the people and that therefore there isn't enough money around to buy the goods.

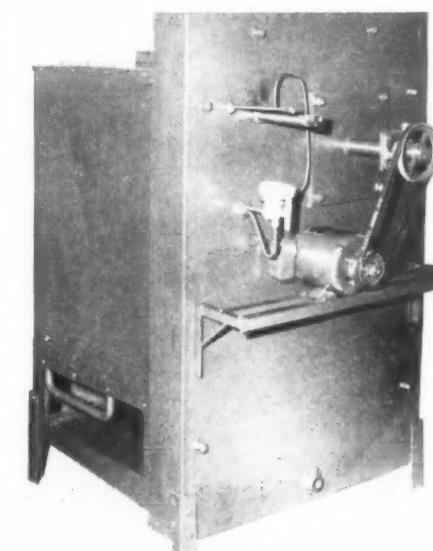
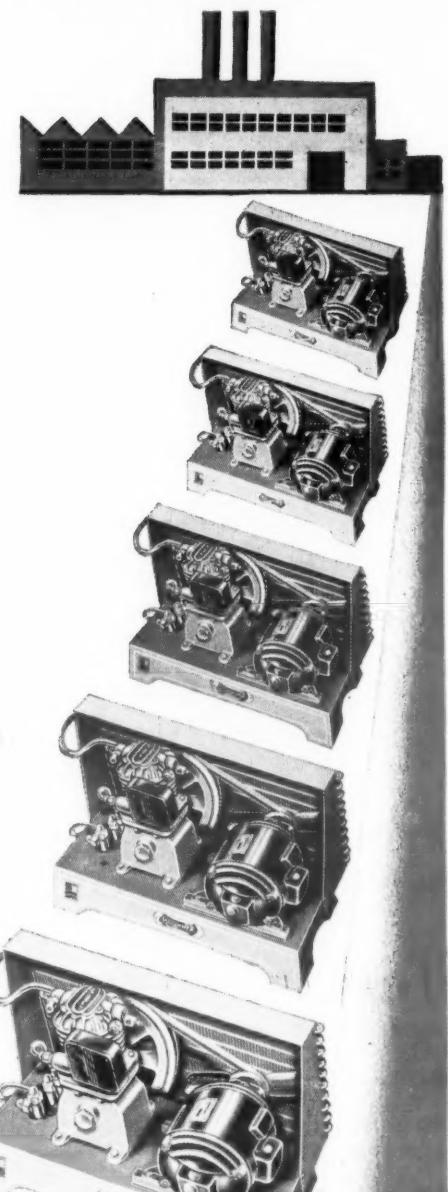
"The records show," he pointed out, "that savings never did support our economy over any reasonable stretch of time and that the vast majority of our products were purchased out of current earnings—either by means of short-term saving for an item or through time financing."

"In 1940," he went on, "31% of all incomes were under \$1,000 while in 1946 this figure had dropped to 14%. And six years ago 19% of all incomes were in the \$2,000 to \$3,000 class while in 1946, the percentage was up to 31%."

"This last is the market that the storm troops of salesmen are going to attack."



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## INSIDE DOPE

by GEORGE F. TAUBENECK

(Concluded from Page 1, Column 1)

Marketers should note well, however, that American citizens under five years of age now number 13,147,000, as compared with 10,542,000 in 1940. All kinds of deductions can be made when smart merchandisers study this sharply-rising curve.

That wartime birth-rate "boom" was due to a "catching up" on wanted child-production which had been postponed during the depression years, plus the stimulus afforded by World War II. (Departing service men—fearing that they might be killed—yearned to "perpetuate themselves" by leaving offspring. Frantic girls, fearing that they might never become wives and mothers, grabbed onto the nearest interested man.)

All those compulsions toward procreation and child-bearing don't exist any more.

Consequently, unless "war mothers" continue to bear children at a high rate, which seems improbable, it's a good guess that the unnaturally hopped-up birth rate registered in the United States during recent years will slump during the next decade.

### Cities vs. Farm-Life

One of the most important fertility factors which affects any country's birth-rate is that nation's rural-urban shifting traits. Farm folk

breed far more children than do city folk. (Figure out your own answer to this one.)

In the United States, you can't keep 'em down on the farm. And that means, in the long run, fewer new-born American citizens.

It's undeniably true that the American people reveal an increasing tendency to migrate from the farms to the cities.

During the war years, our farm population diminished by as many as 900,000 persons annually—aside from those young farmers entering the armed forces. During the 1920's, net losses totaled 630,000 annually. It's a well-defined trend—that you can see.

The farm-to-city migration figures show a higher ratio of departing females than males—probably because farm women believe that urban work is easier, and it offers more opportunities for snaring husbands.

Will returning farmer-soldiers re-enter their rural occupations, or will they turn eagerly to life in the city? That is a question which worries plenty of us. And it is one to which no answer can be given—yet. We shall see what we shall see.

However, it is a certainty that farm-to-city migration will continue, and that a marked depletion of our farm population can be averted only by an upswing in the comparatively-high birth rate which is noted always in rural areas.

Perhaps this upswing should be encouraged by subsidizing child-production just as we are now subsidizing food-production.

Maybe you can't "keep 'em down on the farm" forever. But while they're growing up, boy-and-girl

farmers are a big help to food producers.

### Young Men Go West

Our Great West seems to be absorbing the bulk of America's restless, shifting population—having received a civilian migration of 2,048,000 between 1940 and 1945.

The South has contributed the greatest number of its inhabitants to this Westward migration—having lost a total of 1,203,000 persons to the undeniably charms (for living purposes) of the West Coast.

Although this westward trek was highly stimulated by the war, the moving-westward tendency of Our People continues unabated during normal times—with California, Arizona, Washington, Oregon, and Nevada accepting the lion's share of migrants.

Leaders in other in-migrant areas are the District of Columbia, Florida, Michigan, Ohio, Illinois, New Jersey, and Maryland.

On the other hand, the heavy losers (during the last 12 years) are the northwest central, southwest central, and southeast central states.

### The South Yields, But Doesn't Lose

It's an odd fact that, although the South furnishes an enormous percentage of transients to the migratory total, its population does not seem to decrease.

The birth-rate in the southeast and southwest central states is so high that they gain 50% more natural voters during every five-year period than they lose by out-migration.

Consequently, due to its high birth-rate, the median age in the South is only 25.5 years, as compared with nearly 30 (29.7) for the nation as a whole.

### Suburban Realtors Happy

That inevitable farm-to-city movement has resulted in an enlargement of nearly all major cities' suburban areas.

Between 1920 and 1930, for example, the suburban periphery of 133 large American cities embraced a 16% increase—while the main city population, in all these instances—grew only 5%.

This trend toward suburbanization became even more pronounced during the war period. As proof, look over these figures:

Population of Charleston, S. C., increased 14.1% between 1940 and 1944, with an increase of 178.9% in outlying districts. Norfolk-Portsmouth-Newport News main city district gained 54.9% with a gain in outlying areas of 176.7%. Mobile gained 35.6%, its outlying districts 173.6%. Muskegon increased 5.3%, its suburban area 26.8%. Portland, Ore., increased 18.9%, its outlying district 66.7%. Seattle gained 17.9%, its suburbs 62.5%. San Diego's population leaped an amazing 97.6%, its contiguous area amassed an astounding population accretion of 128.6%. The San Francisco-Oakland area gained 23.8%, its environs 71.6%.

### More Families, But Fewer Children

More, but smaller, families are arising in the United States—the number of families having increased from 35,124,380 in 1940 to an estimated 37,040,000 in 1944.

The latter figure will expand during the next couple of years, the Census Bureau believes, because many war marriages have not resulted in the formation of families. In 1944, to cite a significant aberration, an estimated 4,500,000 married women were not living with their husbands.

### Ripe for the Townsend Plan

Here's another interesting fact for marketers:

Our population is becoming older—the number of American citizens who are over 55 jumped 13% between 1940 and 1945. Persons in this age bracket now comprise 16% of the entire population, and number about 22,205,339.

Median age of our population is growing, too, as might be expected. This median age was 29.7 years in 1945, compared with 29.0 years in 1940.

That wartime casualties among fighting men would cause a severe surplus of females is now a notion which has become a fallacy. There are only 200,000 more females than males in America—and this surplus figure is largely confined to the non-white population of our country.

Percentage of non-whites remains about the same, with 10% in both 1940 and 1945. According to the 1945 figures, non-white American citizens now number about 14,568,294.

The tremendous increase in our 1945 population—it was listed as 139,621,431, compared with 131,669,275 in 1940—was almost nine-tenths as great as the cumulative figure in the entire 1930-40 decade.

An unofficially estimated population figure for the United States, for 40 years hence, is 161,000,000.

### Change the Rules

Box 652, Chico, Calif.

Editor:

During the recent weeks I have read your editorials with a great deal of interest. They certainly contain a great deal of clear logic. Am writing the following to you as I know you will know what, if anything, to do with it.

In recent months I have heard a great deal about this minority rule in Congress. If this is all true then what chance has our Congress to give us the legislation which we want? The only answer anyone seems to have is that nothing can be done because the Rules Committee and others have everything sewed up in the House and the filibuster can control the Senate. These appear to be a couple of monsters which no one can control.

There are a few gaps in the logic of all this which I fail to comprehend. However, I have not gone far enough into the realm of higher mathematics as yet to obtain five by adding two and two. Have delved somewhat into the geometry of the fourth dimension and a little on relativity but failed to get the answer to it here. I should, also, like very much for some brilliant young student to find the error in the following paragraphs.

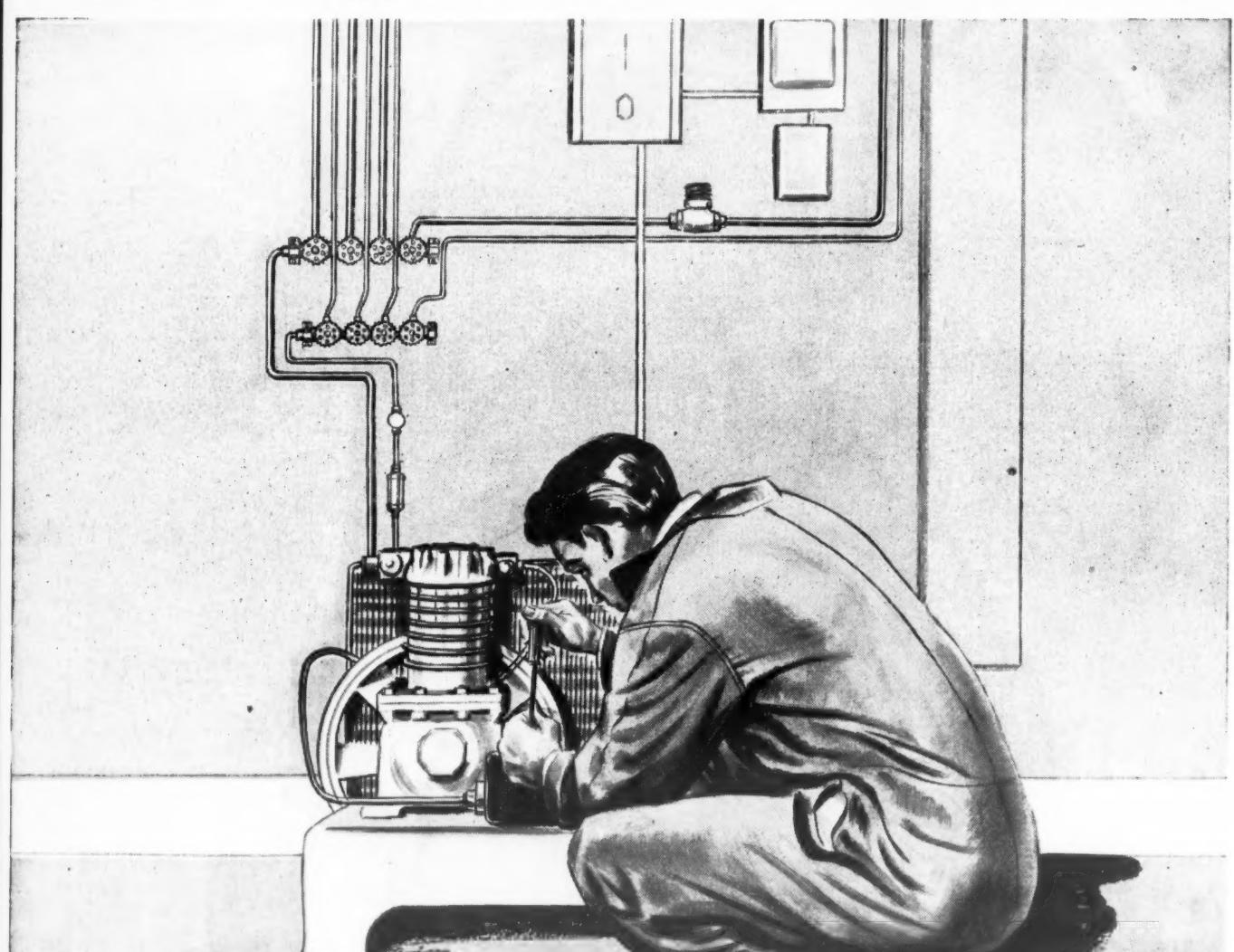
We have a House of Representatives of more than four hundred men and a Senate of 96 men who are elected by popular vote of the people of the several states and districts of our country for the purpose of making laws as they become necessary and repealing them when they become obsolete. These men are elected and paid by us for this job. All of these men must to some extent at least be leaders of some sort. There should at least be a little initiative among some of them. To see the majority of these men who are selected by us to represent us to permit a small minority stand in their way and prevent them from doing their job is absurd.

The Constitution creates the Congress as a body of men to represent the People for legislation, states the powers and gives a few limitations of Congress, and gives a very broad field for the manner in which this is done. It states in paragraph 2, section 5, article 1 that, "each house may determine the rules of its proceedings." As I understand it the Houses of Congress are understood as groups of men not places.

The present situation seems to be that the rules which each House has set up for itself have become so strong that under the rules, it has become practically impossible for its members to do anything about changing them. Was this the intent of the Constitution? Does not the Constitution give the majority the right to make, repeal, and change its own rules of proceedings? Does the Constitution set down any rules as to how or where a majority of its members may make or break its rules of proceedings? Is there any other power other than the Constitution which can tell Congress what it can and cannot do and how it may and may not do it? Now, may I ask, what is to stop a majority of either House from drafting a set of rules for procedure, amending and changing the present rules to the desires of the majority, and without submitting it to the regular channels, signing their names to it, and turning the document over to the speaker saying we demand that it be done this way? Who could stop them? It seems to me that the Constitution gives them the right and the obligation to do this when it becomes necessary. Does not the Constitution make it the obligation of the members of the Houses to make legislation by majority? Does this not obligate the members to use any means at their disposal to carry out their work in this manner? Also; what is to prevent a majority of both houses from affixing their signatures to a piece of legislation and submitting it to the President for signature without it going through the customary worn out and plugged channels? Who could stop them?

All I hear is, this and that can't be done, there is no way to do it. It seems to me there is a road a mile wide. Is there anyone in Washington who can drive?

Radical? Yes? But, so what? LEONARD N. FOX



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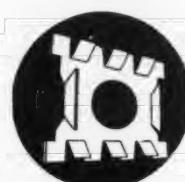


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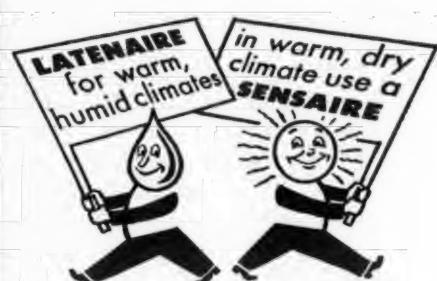
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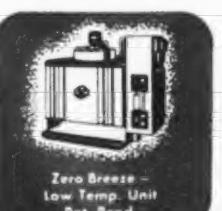
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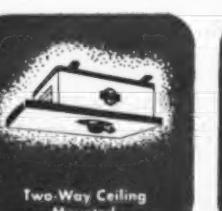
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## Space and Step Saving Arrangements Are Basic In Planning Modern Home Laundry

By the Bendix Home Laundry Institute

Any home—new or old, large or small—can have a modern home laundry. It's largely a matter of space utilization and automatic equipment. Intelligent planning is essential, however, if the home laundry is to have its face lifted to meet the requirements of "the little woman," who is alert to what she wants.

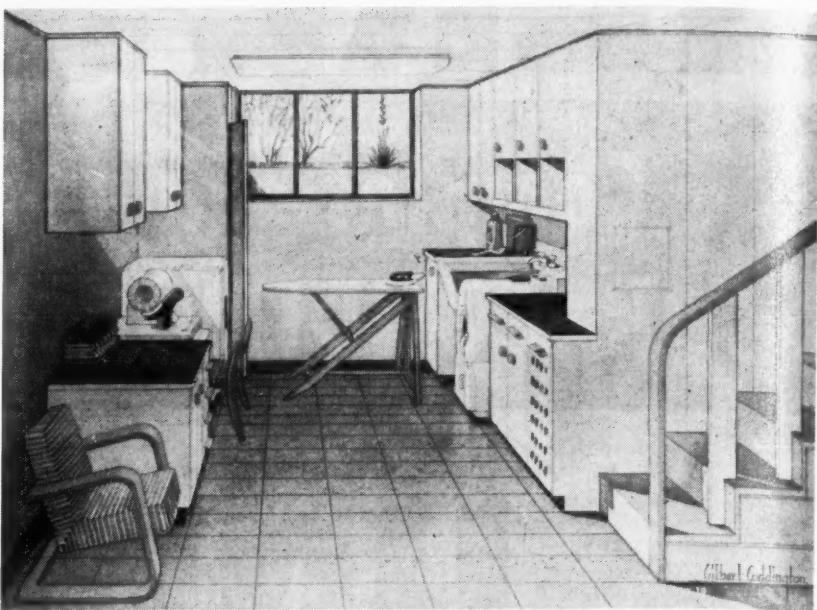
And what does she want? Effortless laundering in attractive surroundings, according to Bendix Home Laundry Institute.

Five basic planning steps should be considered by the homemaker, the builder, the architect, or the home equipment dealer who is called on for advice.

First is the question of space. Space sets the pace for the laundry in any home, new or old. Even in a small space, an amazingly efficient laundry can be arranged.

A step-saving arrangement of equipment is the second essential. Women are aware that efficiency can be attained in a home laundry. But a bit of guidance is helpful. Many a dealer has sold a second and even third appliance because he had on tap a bit of extra information—call it service—for a customer. Tell her that automatic equipment, arranged in proper sequence, is the answer—and even a small space will do.

In fact, the home laundry should be built around the equipment. The



This planned home laundry provides ample cabinet space for laundry supplies. The low-topped cabinet to the left of the ironer is for stacks of ironed clothes. The stairway leads directly to the drying yard.

basic appliance is the automatic washer. It is fundamental regardless of available space. For example, the Bendix automatic washer requires only 4 square feet. Of course, if there is ample room, equip the home laundry with an automatic dryer and an automatic ironer. They complete the labor-saving home laundry.

To lighten the task and please the woman who spends time there, make the laundry room or space cheerful and pleasant. The walls should be light and easy to keep clean. The floor should be resistant to moisture and comfortable to walk on.

There are the extra laundry conveniences that can be incorporated, such as cabinets, storage bins, and work counters. Provision should be made for storage of soiled and clean clothes. Remember that adequate lighting and ventilation will make laundering easier.

Finally, supplementary equipment for the complete home laundry will be helpful. This may include baskets, hampers, hot plate, mending kit, sewing machine, clothes rack, and the like.

The ideal laundry should have an outside entrance. Oftentimes the laundry can be combined with another room, such as the kitchen, a sewing room, or utility room. If at all possible, there should be two windows for cross-ventilation and light. There are many home laundry possibilities. To all of these, the key is space.

### Be Practical, Too

One must be practical, too, in planning the efficient home laundry. Suppose the housewife wants to convert a small sewing room into a first-floor laundry. The designer must keep in mind water and electrical outlets, floor bracing, lighting, drain, moisture-proof flooring, cabinet space, ventilation, and the like.

Water—good hot water—is essential to good washings, excepting of course for delicate fabrics. Therefore, adequate supplies of both hot and cold water should be available. Ordinarily, the matter of water pressure is of no concern, since most systems, public or private, maintain from 20 to 100 pounds. These pressures are sufficient for the successful operation of the automatic washer.

Where the pressure is below 20 pounds, Bendix Home Appliances, Inc., now offers a suspended timer kit which overcomes this problem.

It is unlikely that the sewing room would have drainage facilities. The most practical solution is the installation of a single stationary tub, which will be useful for many house-

hold tasks and will serve also as a drain for the automatic washer.

In rural or suburban districts, where the home is served by a septic tank, it is advisable to bypass the latter and connect the drain to a dry well through a tile field. Soapy water slows bacterial action in a septic tank.

All electric circuits to laundry outlets must be 12-gauge wire. Twenty-ampere circuits should be provided for the washer and ironer, since with automatic appliances, both may be operated simultaneously. There should be a 220-volt, three-wire (25 ampere) circuit for the electric dryer.

Laundry lights can be combined with other lights on a regular 15-ampere circuit. In case a gas, tumble-type dryer is desired, a gas connection will be necessary.

In locating the automatic washer, thought should be given to fastening it to the floor securely. In a non-basement laundry, all things being equal, the washer should be located near a wall (outside one preferred) where the flooring is most rigid.

If the house is in the planning stage, or being built, the location of the Bendix should be ascertained early so that adequate bracing can be built in at a negligible cost.

Since space is at a premium these days, many home owners are finding it feasible to have only a minimum laundry. In this event, great consideration should be given toward utilizing all the maximum benefits of the space involved.

Whatever plan is followed, be sure to arrange the equipment in a logical, step-saving work sequence. This cycle begins with preparing and continues through washing, drying, sprinkling, ironing, and storing.



"An ideal home laundry, situated next to the kitchen and having an outside entrance," Bendix says of this room.

## BRANCH SALES MANAGER

Large manufacturer of air conditioning and air handling products has opening for a Branch Sales Manager. Candidate should be a technical graduate, age about 42 with experience and supervision in sales and knowledge of application of air conditioning and fans. In reply state age, education, experience, and starting salary.

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SPECIALISTS

## New Commercial Firm Organized In Cleveland

CLEVELAND—Formation of Forest City Refrigeration, Inc. with offices and showroom at 1923 East 55th St. here, has been announced by Basil A. Miller, president.

The firm, which will handle a complete line of commercial refrigeration and air conditioning equipment, is an outgrowth of the Polar Refrigeration Co., Mr. Miller said.

The old company, which was formed by Paul Clark and Earl Wilson, operated for several years as a service firm, he asserted. Its founders are now secretary and treasurer, respectively, of Forest City Refrigeration, he added.

Mr. Miller, who recently resigned from the York distributorship here, has spent 20 years in engineering, designing, and selling commercial refrigeration equipment, much of this time with Nash-Kelvinator Corp.

Messrs. Clark and Wilson have had 12 to 15 years experience in the service business, he stated.

## Cornelius Co. Creditors Will Meet April 18

MINNEAPOLIS—A second meeting of creditors of the Cornelius Co., manufacturer of equipment for beer dispensing units, will be held at 10 a.m. April 18, in room 309 of the U. S. Court House here, to complete all unfinished business, George A. Heisey, referee in bankruptcy, has announced.

The first creditors' meeting, held Feb. 14, deferred voting by unsecured creditors to accept or reject an arrangement proposed by the Cornelius Co., according to an account of the proceedings prepared by Mr. Heisey.

The postponement was intended to give the Cornelius Co. time to reduce, if possible, its secured and priority debts by compromise or adjustment, to find new capital for its future operations and for retirement of its indebtedness, to demonstrate that it was a going concern, and to give all interested parties a more concrete picture of the company's position and prospects, the report said.

A creditors' committee was also appointed at that first meeting. The committee, the report asserted, consisted of:

Robert Vincent, president of Vincent Brass & Copper Co., Cornelius' largest creditor; Charles W. Stone, president of Chas. W. Stone Co., machinery sales organization; Carl Hitchcock, vice president of R. C. Hitchcock & Sons, foundry business; Jack Harris, Aluminum Co. of America, local representative; Leonard Simonet, attorney for a number of unsecured creditors; Felix Moses of Reconstruction Finance Corp.; and Victor E. Anderson, U. S. attorney for the district of Minnesota.

*For Silent Operation and Longer Wear on REFRIGERATION and AIR CONDITIONING EQUIPMENT Use*

## MANHATTAN V-BELTS

They grip without slip. They flex without overheating. They are uniformly constructed for longer life. They deliver the power that makes your equipment DEPENDABLE.

**RAYBESTOS-MANHATTAN, Inc.**  
"Keep Ahead with Manhattan"  
MANHATTAN RUBBER DIVISION, PASSAIC, N.J.

**PURO** ELECTRIC WATER COOLERS  
BRANCHES IN PRINCIPAL CITIES  
MAIN OFFICE  
440 LAFAYETTE ST.  
New York 3, N.Y.  
PURO FILTER CORP. OF AMERICA  
DRINKING WATER SPECIALISTS FOR 40 YEARS

## 4 Promoted to Key Posts At Mills Industries, Inc.

CHICAGO—Promotion of four men to key positions at Mills Industries, Inc. here has been announced by Dennis W. Donohue, executive vice president.

George B. Dardwin was appointed vice president in charge of factory operations. He has been with the company for seven years, serving most recently as plant auditor.

Ferris D. Gaskill, Mills production manager for 19 years, was named general superintendent in charge of manufacturing.

New chief industrial engineer is Lewis A. Carroll, who has served with the cost department.

And Herbert Bendfelt has been appointed chief engineer.

## J. J. Koepsell, Wisconsin Firm, Elected to REWA Membership

SHEBOYGAN, Wis.—J. J. Koepsell Co. here has been elected to membership in the Refrigeration Equipment Wholesalers Association.

Officers of the company are A. J. Koepsell, president; W. J. Koepsell, vice president and treasurer; and F. W. Koepsell, secretary.

## \$125,000 Backs A. & B. Service

WATSONVILLE, Calif.—A. & B. Service Co. has been incorporated in Santa Cruz County, with a capital of \$125,000, to sell and service all kinds of electrical appliances.

Directors are A. A. Hutcheon and Cecil Hanie, both of Santa Cruz, Calif.; and S. D. Kniffen, of Watsonville, Calif.

## Drive-In Service Accents Frozen Horse Meat

VAN NUYS, Calif.—Van Nuys Grain & Feed Co. here, which operates a "drive-in service" for poultry ranchers, pet fanciers, dog kennels, and truck growers has installed a huge refrigerated display case which makes it convenient for customers to buy large amounts of frozen horsemeat for dog food without getting out of their cars.

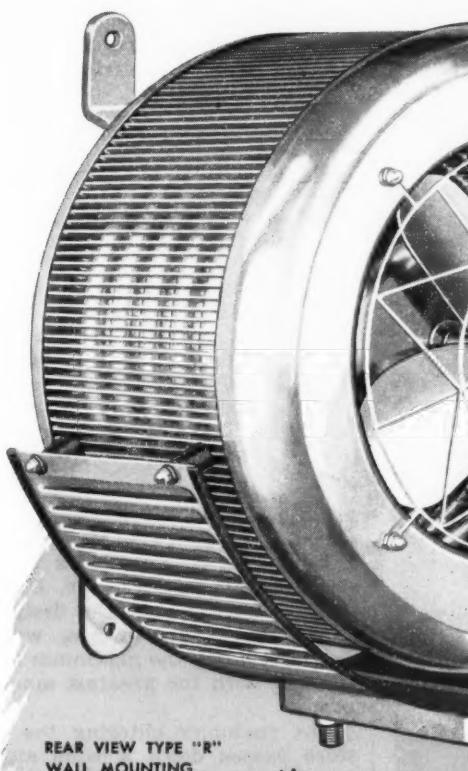
The refrigerator, a six-compartment, reach-in type, is located to the right of a triangular driveway. Customers may drive directly to the refrigerator, give their order to helpers stationed at a convenient pair of scales, and the quick-frozen meat is loaded into the car or truck.



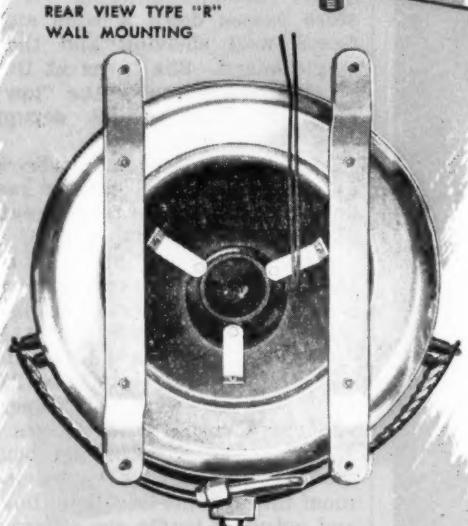
FRANK KNIGHT

## Seeger Co. Appoints Knight

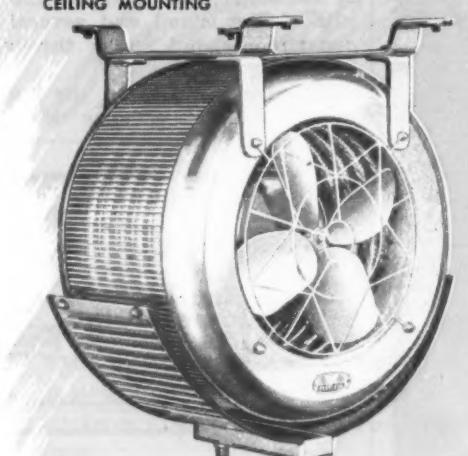
ST. PAUL—Appointment of Frank Knight as purchasing agent for the Seeger Refrigerator Co. here has been announced by G. W. Hamilton, director of purchases. A. G. Pelzl and J. E. Swanson were named first and second assistant purchasing agents. Mr. Knight, who replaces E. J. Vollhaber, was formerly associated with the Northwest Airlines.



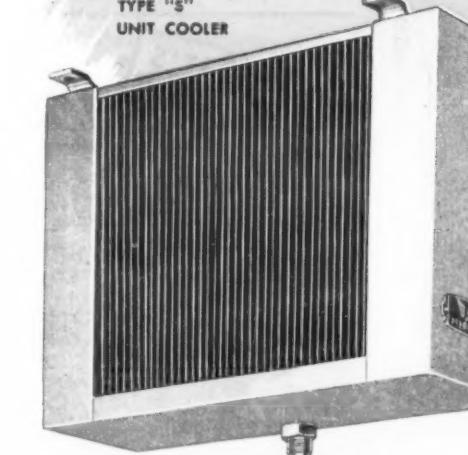
NEW TYPE "R" UNIT COOLER



TYPE "R" UNIT COOLER  
CEILING MOUNTING



TYPE "S" UNIT COOLER



TYPE "S" REAR VIEW

**NOW  
AVAILABLE!**



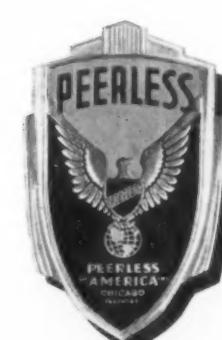
## The New... PEERLESS UNIT COOLERS

See these gleaming new PEERLESS beauties and marvel at their efficient performance. They are the Unit that every Refrigeration man needs for "that" forced convection job. Performance is the byword and performance means maintenance of required temperatures in "that" walk-in or reach-in cooler. Constructed of non-ferrous metals, all aluminum case, aluminum fins and copper tubing for highest rate of heat transfer. Ease of installation and mounting was one of the prime requisites in the design. They occupy minimum and cool maximum space, giving more refrigeration value per dollar. Sizes are graduated to provide the one needed for every job. Casings are highly polished aluminum. Hangers are aluminum. Coils are constructed of aluminum fins and copper tubing. They're beauties and beauties that perform!

The Type "R" Circular Unit Cooler draws in air from all sides and the center blower fan diffuses it evenly throughout the refrigerated space. The Aluminum air-flow drip pan is removable for quick access to the expansion valve. Fan Motor is installed in aluminum housing at rear of unit and not in the air stream. The Circular Type "R" Unit Cooler is a dual purpose unit in that it can be installed on the wall or in a vertical position on the ceiling.

The Type "S" Square Unit Cooler of all aluminum and copper tube construction, is a small, compact unit, a real dynamo of refrigeration. The ideal piece of equipment for beverage coolers, back bars, direct draw beer coolers, display cases and reach-in boxes.

Designed for superior aerodynamic performance, the new PEERLESS Unit Coolers are in the PEERLESS tradition of performance and quality. Specify them!



SOLD THROUGH LEADING REFRIGERATION SUPPLY WHOLESALERS

**PEERLESS OF AMERICA, Inc.**  
General Sales Office  
2901 LAWRENCE AVE. CHICAGO 25, ILLINOIS, U.S.A.



## Heads Sales, Promotion At General Refrigeration



CECIL VOLK

NEW YORK CITY—Martin Specter, president of the General Refrigeration Corp. of New York, has announced the appointment of Cecil Volk as sales and promotion manager of the corporation which manufactures commercial refrigerators.

Mr. Volk opened the first frozen food store in New York. He is inaugurating an expansion program on the new stainless steel line which the company is manufacturing.

### Gardner General Mgr. at Stokol

INDIANAPOLIS—A. H. Gardner, Jr., has been appointed general manager of the Stokol Stoker Co., Inc., here.

Mr. Gardner joined Stokol following his discharge from the Army, in which he served for more than five years.

Prior to entering the service, he was supervisor of dealer merchandising in New England for one of the country's largest oil companies.

### Marty Promoted by Admiral

CHICAGO—Admiral Corp. announces the appointment of Joe Marty, Jr. as manager of its Parts & Accessory Division. In his new position, he will also act as assistant to Richard A. Graver, Admiral's vice president in charge of radio. For the past year, Mr. Marty has functioned as a field engineer for Admiral. Prior to joining the company, he was associate editor of a leading trade journal. He was the organizer and executive secretary of the Radio Servicemen of America.



Can be installed on roof or on outer wall. A complete range of sizes—2,500 to 20,000 CFM. Immediate deliveries. Write for free catalog.

Palmer coolers are backed by over 30 years of engineering research.

**Palmer**  
Manufacturing Corp.  
Phoenix, Arizona

## Texas U. Trains 10 Turks For Service In Homeland

AUSTIN, Tex.—Ten Turkish students have enrolled at the University of Texas here to study refrigeration, air conditioning, and heating, according to Dean W. R. Woolrich, of the College of Engineering.

Five of the students are graduates of Robert College in Istanbul, one has a master's degree from the University of Michigan, and one was studying refrigeration in Germany when the war began. Upon completion of their courses, the students will return to Turkey to enter commercial fields, government service, or private business.

In announcing the enrollments, Dean Woolrich pointed out that the

university has received numerous national foundation awards which have enabled it to make extensive studies in the fields of cold storage, ice freezing, and quick freezing research. This research, he said, has led to several important discoveries.

### '46 Profit for Easy: \$491,452; Reports 98¢ Earned Per Share

SYRACUSE, N. Y.—A net profit after charges and taxes of \$491,452 for the year ending Dec. 31, 1946 has been reported by the Easy Washing Machine Corp. here. This compares with \$387,717 for 1945.

Ninety-eight cents was earned per share based on the combined 57,240 Class A and 443,225 Class B common shares, it was stated in the company report.

## Stalnecker Promoted to Zone Mgr. by Kelvinator

DETROIT—Promotion of Edward L. Stalnecker to Cleveland zone manager is announced by Charles T. Lawson, vice president of Nash-Kelvinator Corp. in charge of Kelvinator sales. Since 1944, Mr. Stalnecker has been household sales manager of the Cleveland zone.

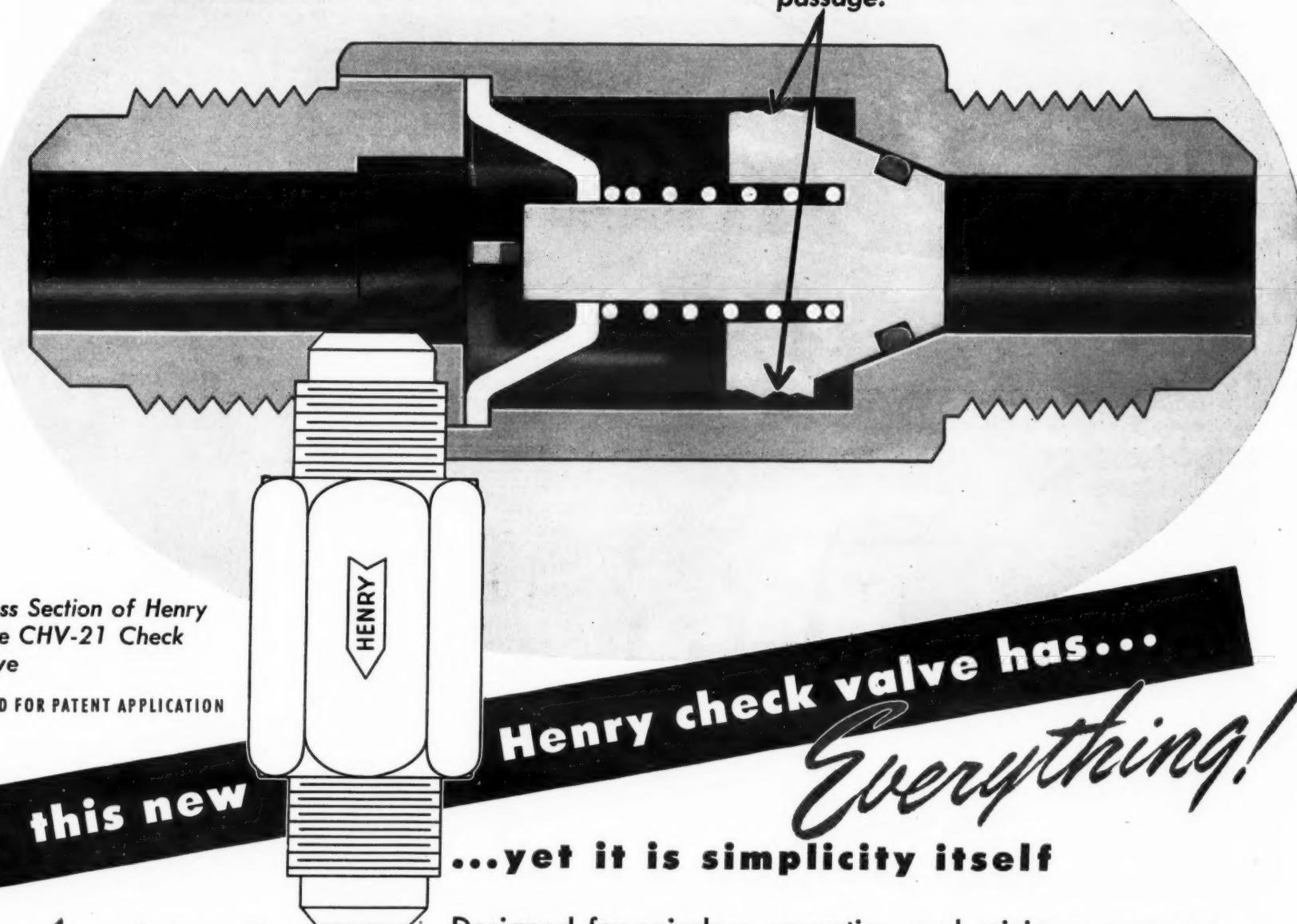
He entered the appliance field in 1924, and has had wide experience in both the retail and wholesale phases of the business during the last 23 years.

Mr. Stalnecker joined Kelvinator in 1939 as a wholesale representative at Youngstown. From 1941 to 1944, he was Cleveland branch manager.



EDWARD L. STALNECKER

Piston Guides not shown  
in order to illustrate flow  
passage.

Cross Section of Henry  
Type CHV-21 Check  
Valve

RECORDED FOR PATENT APPLICATION

this new

*features*  
of Type CHV-21  
Check Valve

1. Compact—minimum number of parts.
2. Positive tight seating because of soft seat ring and guiding through spider and at piston head.
3. Straight through flow, due to seat and piston design—ample passages in spider guide.
4. Minimum pressure drop—streamline flow.
5. Can be installed and will operate in any position.
6. Noiseless operation.
7. Brass body—stainless steel spring and spider guide.



Henry check valve has...  
*Everything!*  
...yet it is simplicity itself

Designed for noiseless operation and minimum pressure drop with Freon and other refrigerants, this new Henry Check Valve embodies NEW features that will instantly appeal to the refrigeration engineer.

Compact, sturdy and with a sealing action that is instant and positive due to the employment of a spring actuated soft seating ring, direction of flow is automatically and completely controlled. Straight through flow assures minimum pressure drop. Valve can be used in any position.

Available with either flare or extended solder connections and of brass construction with stainless steel guide and spring, this new Henry Product answers the need for a compact, dependable check valve in refrigeration and air conditioning installations.

SOLD BY LEADING JOBBERS

**HENRY VALVE COMPANY**

Control Devices, Valves, Driers, Strainers and Accessories for Refrigeration and Air Conditioning and Industrial Applications

3260 W. GRAND AVENUE • CHICAGO 51, ILLINOIS Cable: HEVALCO CHICAGO





## OFF THE CHEST

### IT'S 'SPACE MAKER,' NOT 'SPACE SAVER,' SAYS G-E

General Electric Co.  
Appliance & Mdse. Dept.  
Bridgeport, Conn.

Editor:

Thanks for the write-up in your March 31 issue of AIR CONDITIONING & REFRIGERATION NEWS covering the recent presentation of the new line of General Electric refrigerators and home freezers.

We ought to call your attention, however, to a slight error in reporting. The article referred to the new G-E refrigerators as the "Space-Saver" line. In our sales literature and advertising, we have been using the term, "Space Maker."

As an item of interest, when we were planning these new models, we had originally intended to call them the "Space Saver" line, but after

some deliberation and consultation with our advertising agency, we abandoned that term in favor of "Space Maker" which we feel more adequately and appropriately describes the outstanding feature of these new models.

A. G. CHAFFER, Sales Manager,  
Household Refrigerator Div.

### RESPONSIBILITY GOES WITH U. S. CITIZENSHIP

P. O. Box 131  
Hales Corners, Wis.

Editor:

I have never in all my life read an editorial that packed such a wallop as your "Inside Dope" on Russia. As for me you struck a responsive chord. It would be interesting to know if the majority of your readers have really been moved from their complacent attitude. Personally, I think you will find your-

self like the proverbial voice in the wilderness crying "Wake up America and face realities before it is too late!" I hope I'm wrong but I doubt it.

To my way of thinking there is only one solution to the dilemma in which we citizens of the United States of America find ourselves. We must recognize there is a price to pay for the freedom which our democratic form of government has given us. The price to be paid must be in a change of mental attitude.

We must realize that *individually* we must assume the responsibilities that go with self government; that we can't thoughtlessly shift this responsibility to any single group without any restraint. If we neglect our responsibilities we will only fertilize the ground for that type of government which Russia has been trying to foster upon the world.

We must further realize that if we want the rest of the world to enjoy the standard of living which we have had, we cannot force it upon them, but must by the example we set within our own dominion, create in the minds of those we would benefit a desire to also assume *individual* responsibility for their own welfare.

This attitude alone is the *only* solution to freedom in the pursuit of happiness.

That this willingness to assume such responsibility can solve our problem has already been proved in this country of ours. Less than 200 years ago we as a relatively small group of people broke the limiting bounds of an Aristocracy which is again, as you have said, threatening the very things that have made us the greatest nation on earth. Yes great, because this principle of assuming responsibility was put into practice.

Keep up the good work.  
HOWARD L. GREUSEL

### LAMBAST THE PUBLIC INTO CONSCIOUSNESS

Knaeble Co.  
509-515 Plymouth Ave.  
Minneapolis, Minn.

Editor:

As a subscriber, I wish to register my reaction to your Inside Dope column. (God bless you.)

I have read your columns when back there months ago, an "Isola-

tionist" so called, was a "traitor." Well, time has proven that we who were far sighted enough in those days ("Isolationists" if you will) to have sized up the situation correctly, can now breath easier.

There have been far too few columnists who have been fearless like your Mr. Taubeneck in telling the public the truth—more power to you. We must have more men like you.

Wherever the truth regarding Communism and the Russian plan for domination can be told, it must be told. Do not let up now. Continue to lambast the public for being asleep. Businessmen of all types have been the worst offenders.

The lack of a knowledge of God's word is more responsible than any other one thing for not knowing who we are or where we are going. Do not fail to stress this in your columns. No need to be ashamed of the very thing that will save us—becoming familiar with the Laws of God and abiding thereby. (Keep it up.)

ELMER RODINE

### WANTS TO HELP SPREAD FREEZER EDUCATION

Box 635  
Escondido, Calif.

Editor:

I was very much interested in the news story in your March 17 issue "Freezer Public Education Urged" which gave a report of the Freezer Manufacturers Association's education and publicity committee.

I represent the Yorkville Paper Co. in their frozen food packaging line as applied to home freezers. I have had a freezer in my home for nearly 22 years and, without going into all the details, I have been spending most of my time for the past several months doing lecture work with dealers, appliance associations, Rotary groups, power company employees, and others, trying to build up sales information to these groups, but more particularly refuting the propaganda that you cannot freeze in a home freezer.

Please put me in touch with the proper officials of the Freezer Manufacturers committee so that I might work with them in any way possible.

T. J. MCINTIRE,  
Manufacturers Representative

### CONVENIENCE

is the  
SELLING  
KEYNOTE  
of the

### INTERNATIONAL HARVESTER FREEZER



Controlling the temperature in Model 11 FC-A is easy as dialing your radio. Control knob protected from chance interference by grille.

She'll notice, without your telling her, the recessed base, which provides comfortable toe-



space . . . the gleaming white finish, inside and out, that's so easy to keep spotless . . . the convenient spaces to put food packages when storing or removing them.

International Harvester's hermetically-sealed refrigerating system, hermetically-sealed insula-

tion, wall refrigeration and protected cold control all spell convenience, too . . . in years of efficient, care-free operation.

With the International Harvester refrigeration line you sell convenience . . . not just "another freezer." You talk in terms a woman can understand and that paves the way to profitable sales. Furthermore, your selling is strengthened and reinforced by these four important factors:

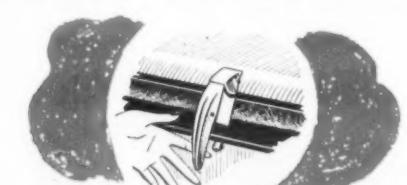
- Powerful National Advertising
- Coast-to-Coast Distribution
- Effective National Service
- Great-Name Prestige

These . . . plus a product second to none . . . plus effective local advertising assistance . . . are the things that will make the Harvester refrigeration franchise increasingly valuable.

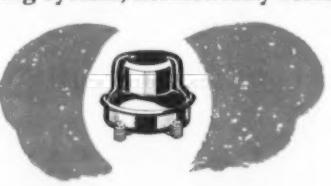
For details about open refrigeration territory get in touch promptly with your nearest International Harvester branch.

INTERNATIONAL HARVESTER COMPANY  
180 North Michigan Avenue • Chicago 1, Illinois

© 1947, INTERNATIONAL HARVESTER CO.



Then, when you point out the smooth breaker-strip, free of fastenings; and the clear view of the interior, without obstructions of any kind, she is sure she wants an International Harvester Freezer.



**INTERNATIONAL HARVESTER**  
*Refrigeration*  
**THE INTERNATIONAL HARVESTER SYSTEM OF FOOD PRESERVATION**

YORK, Pa.—Raymond F. Dauer, West Lynn, Mass., has been named assistant general works manager of York Corp., according to an announcement made today by John G. Bergdall, Jr., general works manager.

Mr. Dauer will be engaged in developing production administrative procedures incident to the plant expansion program, and be immediately concerned with efficient inventory control, including procurement and storekeeping, production control, and administrative expense control.

Prior to coming to York, Mr. Dauer was production manager of the West Lynn plant of General Electric Co. where some 5,000 employees are engaged in the manufacture of a diversified line of equipment.

## Status of CPA Controls Today

WASHINGTON, D. C.—The Civilian Production Administration has transferred to the Office of the Housing Expediter its controls over construction and at the same time cleared its books of all remaining orders except those required to continue distribution controls over a half-dozen scarce industrial products and commodities.

Abolished outright are seven limitation and material (L and M) orders, four priorities regulations, and several miscellaneous directions, some of which had expired by their terms.

Transferred to the Office of the Housing Expediter, in accordance with President Truman's recent Executive Order, are Veterans' Housing Program Order 1 and all other orders and regulations in support of it. Included in these are all provisions, heretofore administered by CPA, restricting construction, channelling scarce building materials into authorized residential construction, and providing priorities and allocation assistance to producers of materials required by home builders.

To remain on CPA's books are orders which provide for allocation of cinchona bark and cinchona alkaloids, from which quinine is produced, and streptomycin, the germ-killing drug; control of distribution and use of natural and synthetic rubbers, and establishment of specifications for products manufactured from them; allocation, use, and inventory limits on cordage fibers and cordage products; allocation of antimony and restrictions on the sale, distribution, and use of tin and cans made from tinplate or terneplate.

Also retained is Priorities Regulation 16 appeals procedures.

Two new regulations, Allocation Regulations 1 and 2, are being issued, said John C. Houston, Commissioner of Civilian Production. They will incorporate in abbreviated form certain provisions of the basic priorities regulations transferred to OHE and will continue the framework within which CPA will carry on its sharply limited export programs.

The regulations and orders transferred by CPA to OHE are Priorities Regulations 1, 3, 5, 7, 7A, 8, 22, 33, and 35; Veterans' Housing Program Orders 1, 3, 4, and 5; Order L-357.

Provisions relating to the veterans housing program in PR's 13, 28, and 32 (revoked by CPA) will be continued in regulations of the Housing Expediter.

Pending applications on Form CPA-541A for priorities assistance under PR-28 in connection with VEHP will be processed by the Housing Expediter.

All communications with respect to the regulations and orders transferred by CPA, should be made to the Office of the Housing Expediter.

### TRANSFERRED TO THE HOUSING EXPEDITER

Priorities Regulation 1—Basic priority rules of CPA.



All stainless steel coils now available. No waiting for beer stone to form. No cloudiness. The first glass drawn is clear. Cools 3 kinds of beer plus carbonated water and plain water in the same cooler at the same time. High tensile strength offers safety, permanency. Highly smooth coil surface stays cleaner longer. Patented Temprite control maintains uniform temperature with the heaviest loads.

TEMPRITE PRODUCTS CORP.  
43 PIQUETTE AVE. • DETROIT 2, MICHIGAN

Direction 1—Changes made by customers in orders placed with manufacturers.  
Direction 2—Transfer of title in financing rated orders.  
Direction 11—Special rules for scheduling and placing rated orders, etc.  
**Priorities Regulation 3**—General rules for application and extension of preference ratings.  
Direction 7—Replacement of defective materials.  
Direction 15—Effect of CC ratings on producers of construction machinery.  
Direction 16—Prohibits extension of ratings for merchant pig iron.  
**Priorities Regulation 5**—Reproduction of orders, forms, and regulations.  
**Priorities Regulation 7**—Basic rules for certification on purchase orders.  
**Priorities Regulation 7A**—Transfers of quotas, preference ratings.

Priorities Regulation 8—Rules under which CPA requires reports.  
**Priorities Regulation 22**—Deliveries into Canada.  
Supplement 1 to PR-28—Conditions for granting RR ratings.  
Table I to PR-28—Table of critical building products.  
Direction 6 to PR-28—Special provisions for use of CC ratings in the purchase of trucks.  
Direction 25 to PR-28—Assistance on pig iron for soil pipe producers.  
**Priorities Regulation 33**—Preference ratings for veterans' housing.  
Schedule A—List of building materials subject to ratings.  
Schedule B—How distributors of building materials handle ratings.  
Direction 5—Gypsum board and lath.  
Direction 8—Prefabricated housing.  
Direction 11—FPHA Temporary Re-use Housing Projects.  
Direction 13—VEHP house trailers.  
**Priorities Regulation 35**—Rating assistance for VEHP and Veterans Administration Construction Program after March 31.  
**Veterans' Housing Program Order 1**—General restrictions on construction and repairs.

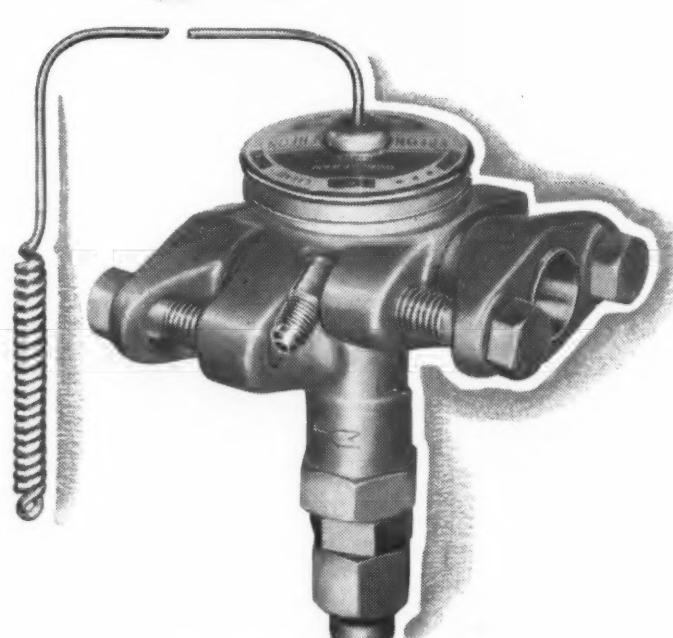
Direction 1—Reconstruction in Hawaii.  
Direction 2—Preparing applications for non-housing construction.  
Direction 3—Standards under which applications are approved.  
Supplement 1—Defines fixtures and mechanical equipment.  
Supplement 2—Provisions relating to the beginning of construction.  
Supplement 3—Small job allowances.  
Supplement 4—Lists items which are not structures.  
Supplement 5—Where applications should be filed.  
WHP-3—Use restrictions on cast iron soil pipe.  
WHP-4—Production restrictions on cast iron soil pipe.  
WHP-5—Delivery restrictions on Douglas fir and Western pine shop lumber.  
L-357—Sales restrictions on FPFA plumbing and heating equipment.  
All outstanding suspension orders, consent orders, and stop-construction orders issued by CPA as a result of violation of any of the regulations or orders listed above are also transferred to the Housing Expediter.

**ORDERS REVOKED MARCH 31**  
Direction 13, PR-1—Suspended ratings for iron and steel.  
Direction 14, PR-1—Controls regarding idle or excess inventories.  
Direction 14, PR-3—Covered use of ratings assigned by other Government agencies to contractors.  
PR-15 (except Direction 22—Covered special sales of restricted materials).  
PR-28—Established policy on CC ratings.  
PR-32—Established inventory controls.  
Direction 14, PR-33—Covered certified orders for blower motors for warm air furnaces.  
PR-34—Covered RFC sales of certain government-owned materials.  
Order L-63—Covered suppliers' inventories.  
Order M-21 (Except Direction 10, which provides for use of symbol CXS on certain export orders for selected steel products).—Established specifications for deliveries of iron and steel products.  
Order M-293—Regulated placing and acceptance of orders, restricted production and deliveries.



No. 673 Thermostatic Expansion Valve

For many years the standard of the refrigeration industry. Orifice sizes 3/64" to 7/32" with capacities up to 3 1/2 tons Freon-12 and 6 tons Methyl.



No. 787 Expansion Valve

Representative of the "Detroit" large capacity line. No. 788 is rated 12 to 20 tons; No. 787-6 to 11 tons; No. 786-3 to 6 tons, Freon-12. Have external equalizer connection and can be furnished with No. 790 distributor with either 6, 12 or 18 openings (1/4" each) for multiple distribution.

"Detroit" Thermostatic Expansion Valves are favored by refrigeration men everywhere for air conditioning as well as other refrigeration installations.

"Detroit" Valves are available in the desired capacities. They have the dependability and durability to give long service without attention.

Gas-charging gives "Detroit" Valves close regulation—guards against motor overload—assures completely refrigerated coils at all times. Often, gas-charging makes possible use of a smaller motor since it does not have to work against excessive pressure during the pulldown period. Gas-charged valves balance the system more quickly when starting up, insuring fast, positive action.

**DETROIT LUBRICATOR COMPANY**  
General Offices: 5800 TRUMBULL AVENUE, DETROIT 8, MICHIGAN  
Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION  
Canadian Representatives—RAILWAY AND ENGINEERING SPECIALTIES LIMITED, MONTREAL, TORONTO, WINNIPEG

"Detroit" Heating and Refrigeration Controls • Engine Safety Controls • Safety Float Valves and Oil Burner Accessories • "Detroit" Expansion Valves and Refrigeration Accessories • Stationary and Locomotive Lubricators

## Speakers Emphasize Distribution System Needed In Frozen Food Industry

**Editor's Note:** From the many addresses delivered at various sessions of the Frozen Food Convention and Exposition in San Francisco the NEWS has extracted portions that would most interest readers. (Continued from the April 7 issue.)

### Food Handling Methods Pace Growth of Industry

—From a talk by E. A. Meyer, Assistant Administrator, Production and Marketing Administration.

To me, three figures give this revolution in a nutshell. Compared with the prewar 1935-39 average, U. S. per capita food production last year was up 25%; consumption per capita was up 16%; and retail food prices were up 60%. I want to repeat those figures, because they are important: Per capita production was up 25%, per capita consumption was up 16%, and prices, 60%.

The Department of Agriculture does not have figures which would give us the 1935-39 average on frozen vegetable production. We do have a 1937-39 figure which shows an average production of 78 million pounds. In 1940, the figure is 83 million pounds, and it continues to move up in each succeeding year—107 million, 163, 223, 238, 308, and last year 380 million pounds—a five-fold increase in seven years.

The story on frozen fruits is almost as dramatic, showing a four-fold increase in those years.

In spite of the demands which our military forces made upon supplies of frozen food, civilian consumption also climbed steadily during the war. Prewar consumption of frozen fruits, for example, was only .8 of a pound per capita. Last year it was 2.5 pounds, and this year it is expected to remain at about that same level. There is no question but that a new major food industry has moved into the American market.

For Appliances Up to 1000 lbs.

—Very Easy Rolling!

WITH BIG DUAL WHEELS

**\$31.95**

This new dual wheel truck rolls easy as a baby buggy, and the man who operates it won't be nearly as tired at the end of the day. 8" rubber wheels give a firm base, make heavy objects easier to load, easier to roll, easier to handle. Wheels are unusually quiet and resilient. Tube steel frames. Ht. 54"; 24" nose. Over 15,000 Handees trucks sold by mail.

Try at our risk. Return express collect if it doesn't fit your needs. Order Monday—get Friday from

**HANDEES COMPANY**  
Dept. AC-4 Bloomington, Ill.

**It's FULL FLOODED**  
THE HUBBELL-YODER  
REFRIGERATION PLATE

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Sole Agents

The handling of your product demands a whole stream of specialized equipment from your plant to the ultimate consumer. There must be the proper number of refrigerator cars, the proper amount of refrigerated warehouse space, the proper number of display cabinets, of cold storage rooms in hotels and institutions, of home refrigeration. There must also be the proper number of trained workers to perform the specialized functions required by this machinery and equipment.

If any one of these falls behind a bottleneck is created. Your industry cannot advance any faster than the slowest link in this chain of handlers.

\* \* \*

In the Research and Marketing Act of 1946, Congress has given the Department and the State Experiment Stations a new mandate for research in the marketing and utilization of agricultural products.

To quote the Act, the purpose of this law is "to promote through research, study, experimentation, and through cooperation among Federal and State agencies, farm organizations, and private industries the scientific approach to problems of marketing, transportation, and dis-

tribution of agricultural products similar to the scientific methods . . . utilized so successfully during the past 84 years in connection with the production of agricultural products so that such products capable of being produced in abundance may be marketed in an orderly manner and effectively distributed."

Though giving us this authorization, the Congress has not yet appropriated funds for carrying it out.

Although the middle West and East led in the building of frozen food lockers a few years back, it is interesting to note that the greatest increase last year was in the South and Far West. About three-fourths of the patrons are farmers.

\* \* \*

Though we will no doubt continue to export large amounts of some foods, we do not expect to export large quantities of frozen foodstuffs. They do not lend themselves to export. For frozen foods to be handled in a foreign country, there must be the same chain of special equipment which we have in this country.

Even in England and Western Europe where you have a high standard of living the percentage of families having home refrigeration is quite small compared with this country. However, I hasten to add that where domestic supplies of food with which you compete are lowered by foreign shipment, it will tend to boost the demand for frozen foods here at home.

### Banker Outlines Program For Sounder Operations

From "A Banker's View of the Frozen Food Industry," by Frank E. Jerome, vice president, Seattle-First National Bank, Seattle, Wash.

I do not believe I am making an understatement when I say that the banks of the country strongly believe that the frozen food business has a great future. We were just as enthusiastic as you were when the industry was being over-glamorized and conversely we want you to know that we are equally sympathetic with your present problems.

1947 SEASON—In my opinion, frozen food packers are confronted with one of the toughest packing seasons in their history. The large carry-over from last season, regardless of the reason, such as a shortage of sugar and shortening, cannot be ignored. A large part of this inventory is of poor quality and must be absorbed before a stable price level is reached.

Packers who are long on certain items would do well to curtail production or even forego packing some of these products. I know of a number of packers who are curtailing production and are not planning to pack specialty or slow moving items. The stocks of canned goods should also be taken into consideration.

During the war when 60% to 80% of the canned goods went to the Armed Services the field was left clear for frozen foods. It was then a question of food, not quality. This cycle has changed completely. Frozen foods are still considered by many as a luxury product and there is no place in the competitive markets ahead of you except for the fancy grades.

Here are a few ideas which I feel would put the industry upon a sounder basis:

1. Curtail production consistent with capital limitations—and what the markets can digest.

2. Concentrate on fancy merchandise.

3. Pack against bona fide orders from responsible buyers.

4. Develop a more cooperative relationship between the packer and the distributor. Many distributors are having a difficult time maintaining their position on account of inferior merchandise.

5. Establish some central advertising medium to educate the public to the use of frozen foods. This will assure markets, stimulate sales, and benefit the entire industry.

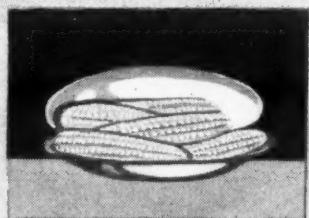
6. Participate more actively in the development of channels of distribution and to take a greater interest in the development of quick-freeze dispensers to encourage the use of frozen foods by the large chain stores.

(Concluded on next page)

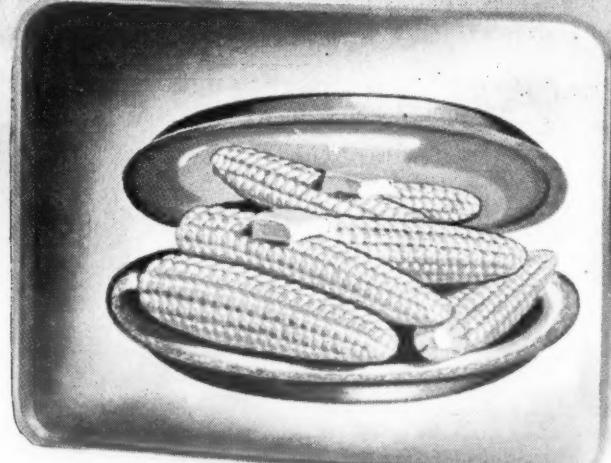
## Here's Frozen Food Sales Appeal

... It can't be shown!

THE OLD



THE NEW



You have to see  
the Difference!

This is a completely new approach to frozen food merchandising — as revolutionary as frozen foods themselves! Now, for the first time, you can cash in on the eye-appeal of fruits, vegetables, meats at their luscious,

natural best. Not just pictures but three-dimensional displays that have life, glowing color . . . so real your customers will be tempted to reach out and touch them. It's startling—amazingly effective in creating sales!

### NEW FRIGID-FREEZE CABINETS with 3 DIMENSIONAL DISPLAYS

Brand-new, multi-purpose FRIGID-FREEZE cabinets, equipped with three-dimensional superstructures are in production now . . . ready to multiply your frozen food sales. Let the striking displays draw customers in crowds! At peak hours, you simply remove the Thermopane glass doors completely for fastest self-service—replace them as easily and quickly later on.

The same 3-dimensional merchandising magic can be applied to ice cream in all its appetizing forms. And, of course, you can depend on FRIGID-FREEZE for the finest quality, efficiency and reliability in low temperature equipment.

REMOVABLE GLASS TOP DOORS!



Illustrated FRIGID-FREEZE Cabinet No. G-1046 equipped with 99-3 three-dimensional superstructure. \$795. Complete

## What They Said at San Francisco--

(Concluded from preceding page)

Some bankers throughout the country have considered frozen foods as a non-perishable agricultural product, which would permit them to make loans against this commodity in excess of their legal limit as provided for under the Banking Act. However, a recent interpretation by the Comptroller of the Currency is to the effect that frozen foods are considered *perishable* and therefore banks are restricted to making loans against the commodity to 10% of the bank's capital and surplus.

## Selling Job Needed To Promote Frozen Food Use

—From "The Frozen Food Industry At the Crossroads," a talk by Burton L. Prince, president, National Wholesale Frozen Food Distributors, Inc.

Obviously we have not convinced any substantial portion of the public of these advantages for our products. The past three or four months disclosed what a poor selling job was done. Newspaper advertisements all over the country have been offering leading brands of frozen foods at retail prices lower than ever before. Even these substantial price reductions were of little assistance in moving much merchandise.

Low prices were not enough of an attraction to housewives. Most purchasers do not care how cheaply they may buy frozen foods, they just

do not use them in their homes. In many cases the newspaper space did not bring returns sufficient to pay for itself.

Blubber is a basic diet to the Eskimo, but no American housewife would buy it, whether the price was 10 cents a pound, or 10 pounds for one cent.

## Easy-to-Handle Package Must Give Protection

—From "The Frozen Food Package of the Future," by Mason Rogers, President, Packaging Institute.

In the early thirties, the Birds Eye retail package appeared—it was a combination of bag or liner, waxed carton, and overwrap. It was the best they could build then. Most of the other frozen food packers who were struggling to get started in those early days used much the same type of package. I contend that a complete survey of the packages used in 1946 would show at least 50% were of the same type.

For the last two years men in our company have been bringing from home empty frozen food cartons just so that we could follow the progress being made and about 70% of those put out by the quality packers have been some kind of combination of bag or liner, waxed carton, and overwrap.

Incidentally, we have noted to see a trend away from the inner bag,

without improving the carton—the food in these packages has invariably been dehydrated to a greater or less degree.

1. Sizes should be standardized as far as possible.

2. The package must be so built that it can be handled at high speeds.

3. It must give protection to the frozen food so that the product will not deteriorate in freezer storage for at least 12 months—preferably 18 months.

\* \* \*

Washington and Oregon account for a large percentage of the country's volume and, in addition, they produce almost all products commonly frozen. I found that in 1944, this was the breakdown:

Fruits and berries—

48.6% in barrels  
26% in 30 and 10 lb. fiber cartons  
25% in smaller cartons

Vegetables—

6.9% in 30 and 50 lb. containers  
35.1% in 2½, 4, and 5 lb.  
containers  
46% in 10 oz. up to 2 lb. containers  
12% miscellaneous

\* \* \*

But if I had to set up a budget figure for 1947 for these United States, it could look something like this:

Fruits and berries—

barrels: 40%  
30 lb. cans: 10%  
bulk fiber containers: 20%  
retail packages: 30%

Vegetables—

bulk fiber containers: 10%  
2½, 4, and 5 lb. containers: 40%  
retail packages: 50%

\* \* \*

Retail cartons—Here is the part of the business that receives the most

publicity and around it has been built up the glamor of the frozen food industry. When you go after this market, you run right up against Mrs. Consumer, a discriminating buyer. Not long ago, in my presence, the director of one of the largest food laboratories in the country was asked by his company rated the characteristics of its products, in order of their importance. He replied, without hesitation:

1. Convenience

2. Flavor

3. Nutrition

I suggest that we consider these requirements for the retail package, in addition to those already listed:

1. It may be easy to open.

2. It must retain the flavor of food.

3. It must prevent loss of vitamins, etc.

The first of these can be added to our previous three requirements—the second and third are already included under "protection." Can we, therefore, measure what we have today and may expect tomorrow against these four ideals:

1. Standard sizes.

2. Handled at high speeds.

3. Amply protected.

4. Convenient for the customer.

After the custom of a few years ago this becomes SHAC—you can at least pronounce it.

\* \* \*

The question of ease of opening is a tough one. To obtain adequate protection, a package should be tightly sealed because water-vapor, which is a gas, will find its way through the smallest opening (that's why one should not rely on an overwrap). Seal end cartons are more easily sealed than other types and, conversely, harder to open.

If somebody could develop for a frozen food package the method used for opening a package of gum, he would go far—but as of today, I imagine that dependence on the reliable kitchen knife is the answer. I suggest that you have printed on your package where the knife should be applied—Mrs. Consumer will ultimately read your message. Also, get your mechanics thinking about a "carton opener"—there are several available for cans.

## Frozen Food Carriers Aid New Store Patrons

EVANSTON, Ill.—A new frozen foods store, carrying 175 different varieties of frozen foods, has been opened in an annex to its department store by the Marshall Field Co. here.

As an attraction to draw out-of-town shoppers, fibreglass-insulated frozen food carriers, capable of keeping frozen foods from thawing for a period of five or six hours, are kept on hand for the use of frozen food purchasers. The use of one of these containers allows the out-of-town customer to purchase what frozen foods she desires and carry them with her while she completes what other shopping she must do, without any danger of the foods thawing.

The 175 various frozen items are carried in 11 open-type frozen food cabinets, having a total storage capacity of about 200 cu. ft.

According to the management, many products carried in the freezers are not obtainable in the average frozen foods store. These include hors d'oeuvres, Danish pastry, shrimp creole, clam chowder, oyster stew, and orange juice. Poultry, vegetables, fruits, bakery goods, ice cream, and pre-cooked foods are also stocked. Frozen sea foods are carried in two cabinets devoted exclusively for this type of frozen food.

The store, in addition to frozen foods, carries 25 different varieties of cheese. A separate open-top refrigerator is devoted to this. Still another display is used for sauces and toppings for frozen pastries or ice cream.

## TREMENDOUS DEMAND!

THE SENSATIONAL, NEW



### PROTECTS FROZEN FOODS

The exclusive, self-contained warning system sounds an alarm whenever temperature rises above a certain point FROM ANY CAUSE. Not connected with any electrical system. Every freezer or deep-freezer instant needs one. Liberal dealer discounts, literature available.

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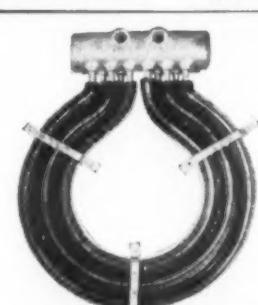
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Your products have depth, realism, full-vision sales appeal!

Brilliantly lighted, full color, life-like products—interchangeable!

Brand-name and package get "can't-miss-it" display.

DELICIOUSLY FRESH FROZEN FOODS

MIXED VEGETABLES ASPARAGUS BROCCOLI BRUSSELS SPROUTS SHRIMPS LOBSTER MEAT COD FISH CAKES CRAB MEAT

CORN ON COB KALE OVEN BAKED BEANS CHOW MEIN CHICKEN A LA KING CHOPPED STEAK CORNED BEEF HASH DOG - CAT FISH

STRAWBERRIES RASPBERRIES BLACKBERRIES PEACHES MACKEREL FILLETS HADDOCK FILLETS FLounder FILLETS RED PINK FILLETS

CARROTS CUT CORN PEAS - CARROTS LAMB STEW VEAL STEW BEEF STEW BEEF GIBLESH

CAULIFLOWER LIMA BEANS LIMA BEANS LIMA BEANS GREEN BEANS WAX BEANS

SNACKS - SNACKS SPINACH MUSHROOMS PEAS - CARROTS LIMA BEANS LIMA BEANS GREEN BEANS WAX BEANS

VEAL STEW BEEF STEW BEEF GIBLESH

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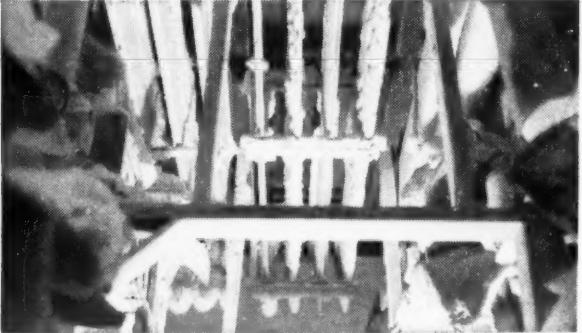
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### Out With Special Privileges -- Revise the Wagner Act!

Only  
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give you  
**100% PRIME SURFACE**



#### INSTALLATION PROVES KOLD-HOLD SUPERIORITY

The installation pictured above is in the very small combination sharp freeze and storage room of a small town hotel. The Kold-Hold bank shown was installed when it was found that a series of banks of plates of another type were incapable of holding the proper temperature. At the present time between seven and eight tons of food are stored at  $-20^{\circ}$  and in addition approximately 1800 pounds of turkeys are frozen every twenty-four hours. The installing contractor states that the Kold-Hold plates defrost in less than one-third the time required for other plates in the same circuit. This proves in actual test the much higher rate of heat transfer possible with Kold-Hold's exclusive design.

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protects every step of the way

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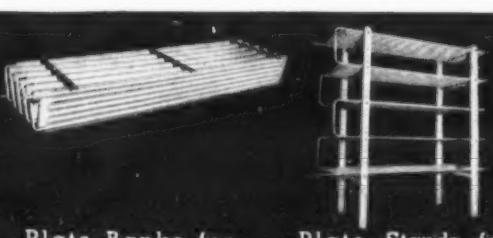


Plate Banks for space cooling of large areas.

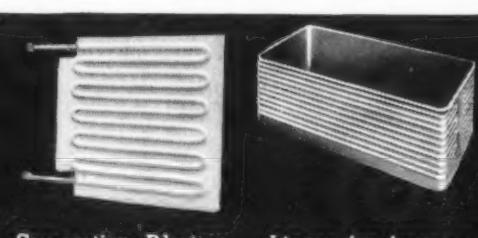
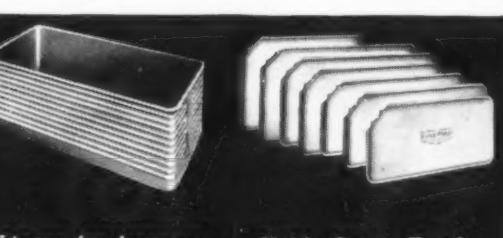
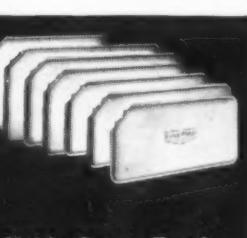


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## Farmers Are Prosperous -- They Need and Want Freezers -- Why Neglect Them?

ECONOMIC soothsayers often go wrong. Six months ago, they were predicting that *all* prices were headed for a tailspin, that unemployment would become a problem, and that a recession would jar this nation during the early months of 1947.

None of these dire predictions has been fulfilled. Rather, the price level has been *rising*—especially in the realms of food and clothing.

Many of our top-ranking economists now are moaning low over the continued high-level price range of foodstuffs. Because the cost of three-meals-a-day takes a big bite out of the average family's budget, these lugubrious analysts declare that there'll be a little left over for the purchase of consumers' durable goods (such as refrigerators and home appliances).

They forget one thing: Our nation is still the greatest producer of foodstuffs in the world. Agriculture is still basic in our national economy. High prices for farm produce insure the prosperity of the nation's manufacturers and of the workers in those factories. Farmers are *customers*.

As S. K. Rodenhurst, secretary of the New York Dairymen's League said recently in Buffalo:

"Depressed farm prices have always been the forerunner—and largely the cause—of general business depressions."

Be that as it may, it should be obvious to manufacturers and sellers of frozen-food storage boxes that *the farm market is the most prosperous and the most inviting of all the markets they survey at this time*.

Yet, too many sales directors fail to grasp the significance of this truism.

So far, less than 25% of our nation's total output of packaged frozen foods have been channeled to the non-urban market, and less than 5% has gone to farms. Yet the farmer, whose food supply is "at the back door," is perhaps the best of all prospects for the low temperature freezer. And he wants the highly profitable, larger capacity jobs, too.

There are approximately 3,000 wired farm homes in the U. S., and another 6,000,000 rural (but non-farm) homes. Of this number, half of the farms and almost two-thirds of the rural (non-farm) homes are said to own household refrigerators. How many own the even more useful farm freezer? Precious few. Why not? Because these excellent prospects haven't been contacted.

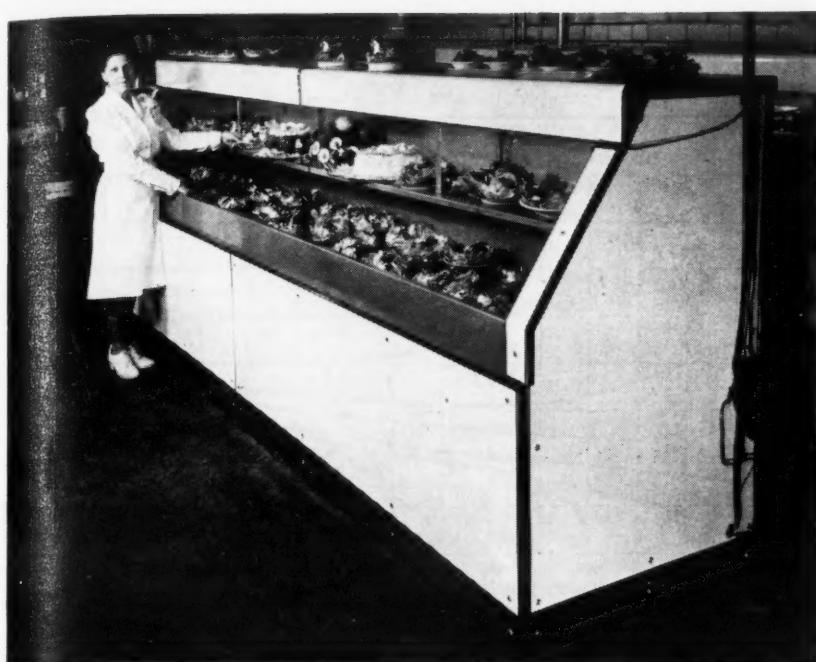
This rural potential market represents slightly less than  $\frac{1}{3}$  of all the wired homes in the entire United States. Yet the percentage of wired rural homes ranges from 90% in the Pacific states to 22% in the middle Southern and Gulf states. With rapidly increasing rural electrification, the farm market opens its arms wide as a "natural" for the sale of larger capacity freezers.

Incidentally, the increasing number of locker storage plants coming into operation will undoubtedly enlarge the use of frozen foods in the farm and the rural (non-farm) market.

Last year, approximately 118,000 individual freezers were produced and sold. Of this modest number, probably less than 10% found their way into the eager rural market. Why? Because distributors and dealers were too busy to think much about it.

High prices for foodstuffs, and unprecedented prosperity (cash income) for farmers, should be noted by this industry. Right now, the freezer business should gravitate to the rural areas.

## CASES HELP TEAROOM SALAD 'ASSEMBLY LINE'



Here is a 12-cu. ft. refrigerated display case used at Stix-Baer-Fuller by tearoom waitresses. Salads are placed in the case from drawers in the rear where they are prepared at another similar converted case.

ST. LOUIS—Two standard 12-foot open-type refrigerated display cases have been converted into what is claimed the nation's "fastest salad service" by Harry D. Hoenig, food service manager at the Stix-Baer-Fuller Department Store, here.

The Stix-Baer-Fuller tearoom serves 1,800 people daily from 11:00 o'clock in the morning until 2:15 in the afternoon, and offers 7 salads every day for women shoppers. Before the two 12-foot refrigerated cases were put in use, salad operations were the worst bottleneck to contend with, according to Mr. Hoenig.

Three girls who made the salads for the noon-day rush worked on an open table, and had no storage space in which to pre-prepare a stock of ready-made salads. Forty-five waitresses tied up the salad makers coming in too close contact, and often snatched away salads before they were entirely completed.

"Also, our salads used to wilt in the kitchen heat if they were made up even a few minutes before time for service," Mr. Hoenig indicated.

The solution developed proved to be conversion of the two refrigerated cases into a rectangular "salad unit," with the back box serving as a preparation space, and the front box as refrigerating space in which to keep a stock of 150 salads ready for service.

The rear refrigerated box is placed against the wall of the department store kitchen, and has been equipped

with a flat board, 18 in. wide at the lower edge of the vegetable storage space. This serves as a work surface on which three girls prepare salads from a stock of tomatoes, lettuce, fruit, nuts, celery, cucumbers, etc., kept chilled to 45° F. in the open bin on the other side of the work table.

All of the china plates used for salad service, incidentally, are also kept in circulating cold air in the open refrigerator, which guards against early wilting of the lower part of the salad. Turkey, chicken, cottage cheese, and other perishable salad ingredients are stored in four compartments below.

Since the store features seven salad plates per day from 65 cents to \$1, the salad girls make only seven types of salad. These, as soon as prepared, are inserted into the back of the second supermarket type vegetable box, by means of seven drawers at knee-height. The drawers are 30 in. long by 18 in. wide, 7 in. deep, and are filled from the rear and pushed forward where waitresses coming in from the service area may merely reach in the open front of the refrigerator and pick the type of salad on their order checks.

Hoenig's salad crew now begin making salads at 9 o'clock in the morning, filling the drawers first, and then putting a secondary stock on flat trays above the drawers. About 150 salads are thus accommodated.

When the noon rush comes along, the 45 waitresses quickly take off the

entire first row, and then begin on the stock in the drawers. As the salads are used up, the crew of three girls, augmented by another during the rush period, continually fill them up from behind.

Conversion of the refrigerators was relatively inexpensive, according to Mr. Hoenig, and due to the fact that there is now no delay in getting salads to customers, sales have risen substantially.

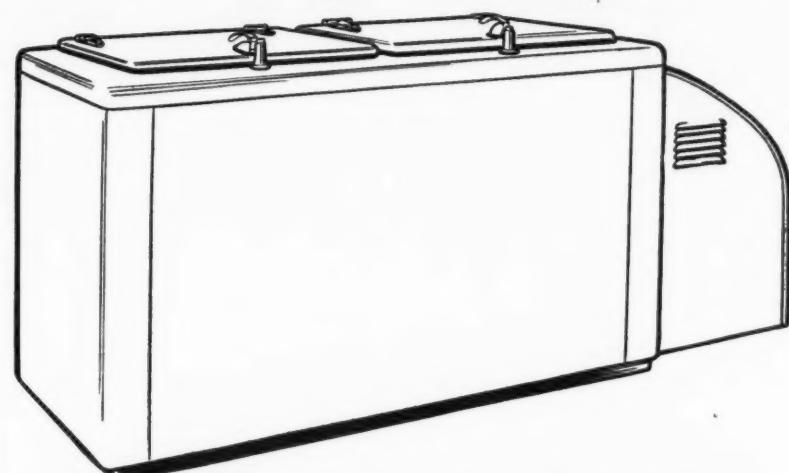
"Our girls can suggest salads of all types with the assurance of being able to deliver them immediately," Mr. Hoenig pointed out, "and we have absolutely no spoilage loss even when salads are made several hours in advance, due to the circulating cold air."

Another innovation which the Stix, Baer, Fuller restaurant uses regularly is a battery of stainless steel "pass through" service units in the wall separating the dining room from the kitchen. These, resembling miniature refrigerators with glass doors on each side, are really two hot and two cold units, to correspond with the four hot and four cold entrees served by the store daily.

An ice-cream box, steam table, and salad table back up the novel pass through unit, employees here filling up the pass through units with standardized entrees as rapidly as waitresses on the other side empty them.

"This keeps wage cost down tremendously," Mr. Hoenig said. "Where our waitresses used to serve 15 people each during the luncheon period, each can now serve 25."

# Sanitary Quicfrez



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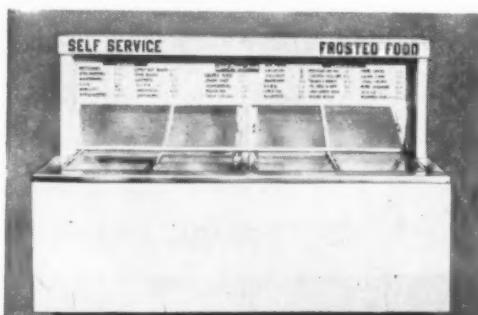


The case on the right is used as a "work-table" by kitchen help to prepare some 150 salads which are then placed in the case at left easily accessible to waitresses filling tearoom orders.

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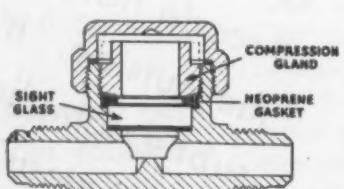


DOUBLE PORT LIQUID INDICATOR



The improved design of our liquid indicators is effective assurance against refrigerant leakage around the sight glass. The sight glass is sealed into the forged brass body by a heavy Neoprene gasket which, in turn, is compressed by a packing gland, which forces the pliable gasket along the sides of the glass and produces a perfect seal.

Mueller Brass Co. Liquid Indicators are made in a complete range of styles and sizes. The



seal cap type may be installed where light conditions are favorable. Where the light is poor, we recommend the use of our double port liquid indicators illustrated here. By flashing a light through one port, the exact condition of the refrigerant may be determined through the other port.

The new design of the compression gland permits the use of standard wrenches for tightening.

## MUELLER BRASS CO.

PORT HURON, MICHIGAN

## Functions and Operations of Automatic & Thermostatic Expansion Valves Analyzed

**Editor's Note:** The following is the second half of an article discussing the fundamental differences between the automatic and thermostatic expansion valves. It was presented by Mr. Carter at the annual educational conference of the Interprovincial Association, Refrigeration Service Engineers Society, in Montreal.

By F. Y. Carter  
Detroit Lubricator Co.

In the dual element type of valve, such as shown here, a constant superheat is obtained by mechanical design, that is, the proper relation between bellows areas. Refer to Fig. 5.

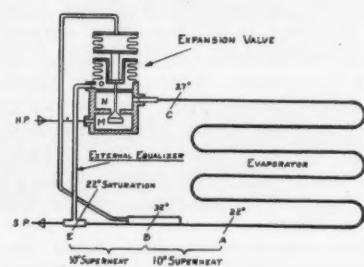


Fig. 6—Pressure connection for an external equalizer type valve is connected to the suction line beyond the feeler bulb.

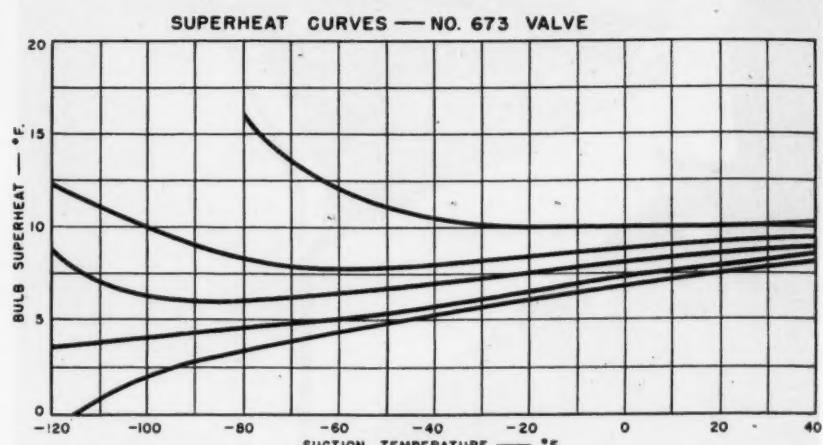


Fig. 5 shows superheat curves for the Detroit 673 valve over the range from -120° to 40° F.

### EFFICIENCY COMPARISON—THERMOSTATIC VS. AUTOMATIC

Fig. 7 is a representative capacity curve of a refrigerant compressor between the normal operating limits of a particular unit which we might suppose to be a freezer. If an automatic expansion valve is used it must be adjusted for a saturation temperature approximately 10 or 15° lower than the desired cabinet temperature.

Where pressure drop exists in a coil to an extent where it is necessary to use an external equalizer type expansion valve, the valve should be connected as shown in Fig. 6. Note that the pressure connection is taken beyond the feeler bulb so that any leakage through the equalizer line will not affect the feeler bulb and cause the valve to prematurely close down and starve the coil.

In many cases where a distributor is used in conjunction with an external equalizer valve, but where there is no pressure drop in the coil proper, good operation can be obtained by connecting the equalizer pressure line to the front of the coil, tied to one of the distributor feed lines. The control characteristics of this type expansion valve are exactly the same as those of an internally equalized valve.

The purpose of an external equalizer is simply to eliminate the effect of pressure drop on valve superheat control. The pressure drop is still in the coil, however, and will result in a higher average coil temperature.

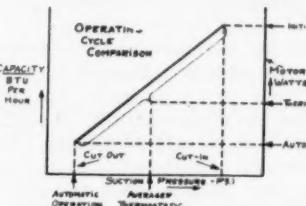
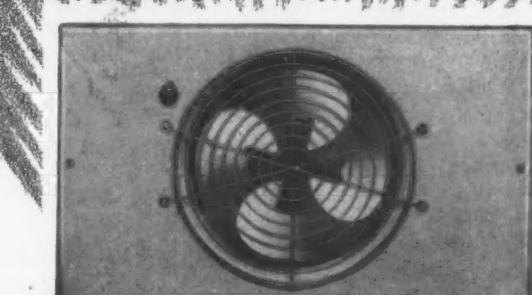


Fig. 7—Operating cycles of both automatic and thermostatic valves on a freezer operation are shown here.

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## How Type of Valve Charge Affects Motor Operation

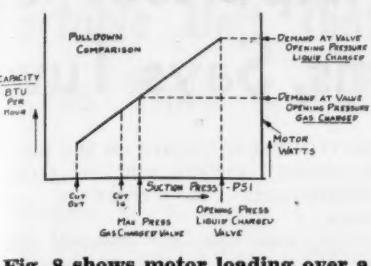
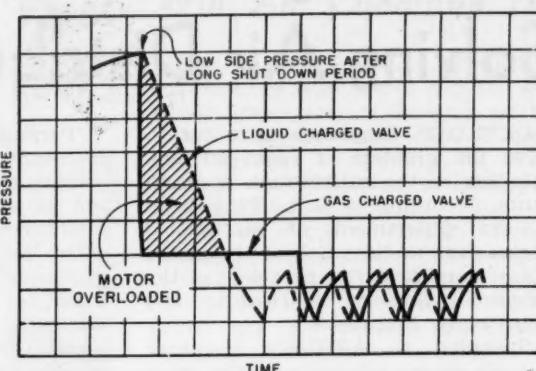


Fig. 8 shows motor loading over a wide range with gas-charged and liquid-charged thermostatic valves.

Fig. 9 (right) compares the operating cycles of liquid and gas-charged valves. Gas-charged elements are said to give better motor protection, but the pull-down time is longer.



## Valves Have Relation To Wattage Demand

(Concluded from preceding page) the motor, but will require a considerably longer operating period which in the end will result in a greater power consumption.

The thermostatic valve, on the other hand, will operate at a higher average suction temperature and will demand more from the motor, but in the end will operate much shorter time and result in a lower power consumption. The same cut-in and cut-out points have been taken here whether an automatic or a thermostatic valve is used.

Actually with this set of conditions the thermostatic valve will operate at a slightly lower cabinet temperature. At the start of the cycle, regardless of the valve used, the initial wattage demand will be the same. With the automatic valve the wattage will immediately drop off to a low value and remain there during the entire cycle while with the thermostatic valve the suction pressure will be reduced gradually as will the watts, but with more efficient operation during the entire cycle.

### MOTOR LOADING

Fig. 8 shows a representative capacity curve of a refrigeration compressor over a wide operating range. At high suction pressures the unit has high capacity and at the same time demands a high wattage from the motor. At low suction pressures the capacity falls off greatly and the wattage demand of the motor is reduced accordingly.

During an extended pull-down period the wattage demand of the motor runs very high and in many cases results in the motor kicking out on over-load. Usually it is found that the motor will pass the test and not kick out on over-load if the pressure at which the compressor can operate is limited to some lower value than would normally be obtained during the pull-down period.

The gas-charged expansion valve, by means of the limited charge in the power element will not open until the suction pressure has been reduced to the pre-determined value at which the motor will safely run for an extended period. The standard liquid-charged valve has no limiting pressure feature and will not give the motor protection obtainable from a gas-charged valve.

### RECORDED SUCTION PRESSURE OPERATION

Fig. 9 shows the comparative operating cycles between a gas-charged valve and a liquid-charged valve. At the start of the pull-down cycle the liquid-charged valve allows the coil to fill up and operate completely refrigerated throughout the pull-down. The gas-charged valve, by means of its limited pressure, will not open until the pressure has been reduced to a value a few pounds

above the normal cut-in point.

When this pressure is reached the valve opens and feeds refrigerant like an automatic valve until the cabinet temperature is reduced and the coil finally becomes completely refrigerated. When this condition occurs liquid condenses in the gas charged feeler bulb and the valve works on the normal thermostatic cycle between the normal operating limits.

The gas-charged valve, by means of its limited pressure gives a motor protection, which will allow the motor to operate without kicking out during the entire pull-down period. Note that the initial pull-down period is slightly longer with the gas-charged valve due to the fact that it is operating in a lower capacity range of the compressor.

During the normal operating cycles both the liquid and gas-charged valves will operate in approximately the same manner.

### BULB SENSITIVITY

Fig. 10 shows the comparative operation of the feeler bulb of a gas-charged valve and a liquid-charged valve. The volume of the gas-charged feeler coil as shown is very small. When condensation takes

### Feeler Bulb Charges

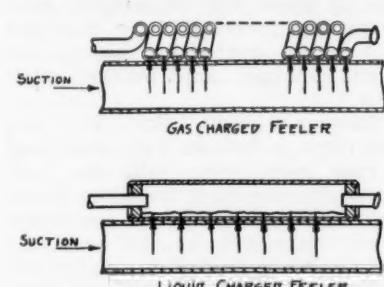


Fig. 10—The gas-charged bulb is said to respond more quickly to suction line temperatures than the liquid-charged bulb.

place, as during a normal operating cycle, a very small amount of liquid condenses in the lower part of each of the helical coils. The transfer of temperature through the walls of the suction line and into the very small amounts of refrigerant condensed in each of these turns takes place very quickly and results in a very sensitive feeler coil.

Sometimes on initial pull-downs it might appear that this feeler coil is too sensitive since it snaps the valve closed very quickly under some conditions, but be reminded of one thing—when the refrigerant starts into the suction line the function of the valve is to close and the gas-charged feeler bulb accomplishes this almost immediately.

The volume of the liquid-charged feeler bulb is considerably greater. Due to the excessive amount of charge in this type of valve, a relatively large quantity of liquid lies in the feeler bulb at all times. Since the pressure within the power element corresponds to the temperature at the surface of the liquid in the feeler bulb, there is a certain thermal delay in the sensitivity of this feeler bulb, so that in many cases the refrigerant in the suction line passes far beyond the bulb before the valve closes to stop the refrigerant flow.

## Russell Sales, Keefe & Sons Named Electricmatic Sales Representatives

CHICAGO—Appointment of two new representatives for Electricmatic products have been announced by the Electricmatic division of the Simoniz Co. here.

On the west coast, the Russell Sales Co. of Los Angeles has been assigned the territory covered by the states of California, Oregon, Washington, Idaho, Nevada, Utah, and Arizona, the company said.

That firm, headed by Lewis V. Russell, who is said to be long connected with the refrigeration industry in engineering and sales work, has branches in San Francisco and Seattle.

In the east, William D. Keefe & Sons will represent Electricmatic in a new territory carved out of the western half of New York state, Electricmatic officials revealed. This territory includes the counties of Jefferson, Oswego, Cayuga, Tompkins, and Tiago, and all those lying further west, they said.

## Brunswick 1946 Net Profit Jumps to \$1,654,288

CHICAGO—Brunswick-Balke-Colender Co. here has reported a net profit of \$1,654,288, or \$3.38 per share for 1946, compared to \$1,018,503, or \$1.98 per share for 1945.

Net sales for the two periods were \$22,268,766 and \$15,209,186, respectively.

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## Satisfying Customer Just as Important as Solving Air Distribution Problems, Says Tuve

DETROIT—Engineers have yet to solve the problem of room air distribution to the satisfaction of occupants, according to G. L. Tuve, head of the department of mechanical engineering at Case School of Applied Science and first vice president of the American Society of Heating and Ventilating Engineers.

Speaking to ASHVE's Michigan chapter on the subject recently, Prof. Tuve listed four types of spaces in which air movement still is unsatisfactory:

1. In public assembly places—theaters, meeting halls, dining rooms, smoking rooms.
2. In residences, especially with many people present.
3. In transportation spaces—railway cars, buses, airplanes, automobiles.
4. In crowded offices and conference rooms.

For air distribution to be ideal, Prof. Tuve proposed, every occupied part of every room or space should have the right temperature, the right humidity, pure, clean, odorless air, slight air motion, and not too much noise.

He said three of the unsettled phases of the problem are noise, dirt, and load control where design conditions are unusual (on-off, high-low, re-evaporation, carry-over). About all that can be said regarding dirt, he observed, is that high velocity should not be used near surfaces, especially light-colored ones.

"Perhaps we need more electrical precipitation," he commented.

While acknowledging that the problem is a "tough" one, Prof. Tuve emphasized its importance.

"In the last analysis," he told the engineers, "we do all our engineering work for the ultimate purpose of satisfying the occupant. Whether winter or summer ventilating, air conditioning, heating, or cooling, the ultimate professional reputation of each of us, and of our Society, depends on the degree of success we can claim before the public . . .

"Then why don't we pay more attention to the only part of our system the occupant sees and feels? Why don't we do more 'customer engineering'? Why don't we consider the end use of our products?

"We get the usual answer to that question: 'Too busy.' We're too busy doing things to have time to think why we're doing them."

"For instance," Prof. Tuve continued, "we set out to design and produce a warm air furnace, and we concentrate on the technical problems: a good heat exchanger, good combustion (perhaps more than one fuel), easily erected on the site (or a light package), good looking, quiet, clean.

"Then somebody asks: 'If I use your furnace, how do I get even heat to each room, even with the doors closed and the wind from the northwest? Can I get good ventilation in all rooms with no dirt or noise? Will the house be just as comfortable on the shady side as sunny? Will the entire house stay comfortable if I have a big party in the living room?'"

Too often, Prof. Tuve said, the reply to such queries is: "It's not my business. I'm just the furnace man."

"We find the same attitude on many heating, ventilating, and air conditioning jobs," he declared. "We're too busy in the boiler plant or the machine room."

### 'Poor Work Hurts Us'

But, he stressed, it is the business of the engineer to see that the occupant gets his comfortable conditions. Every time a poor job goes in anywhere, he added, "it hurts us and our profession."

Prof. Tuve's observations prefaced the technical part of his talk, based on research conducted at Case for ASHVE and others. Before showing graphical and pictorial material by slides, he reviewed the progress made on a program formulated several years ago by ASHVE's Technical Advisory Committee on Air Distribution and Air Friction.

Under the program, work was divided among Case, the universities of Illinois and Wisconsin, and Michigan State College. Although the project is still uncompleted, several papers have been published.

At Case, Prof. Tuve recalled, the first work was done on instruments.

This resulted in papers on the use of air velocity meters and on airflow measurements at registers and grilles.

Next, free open-air streams were studied to check the "momentum theory." Later practical measurements and calculations for more than 50 kinds and sizes of grilles, registers, nozzles, slots, orifices, and perforated panels were undertaken.

In 1942, a third paper was published on entrainment and jet-pump action of air streams. Another on control of air streams in large spaces came out in 1944.

Current studies are concerned with data on wide-angle grilles, long slots, and perforated panels.

### Air Stream Behavior

Some of the results of these studies were shown on slides. This portion of the talk covered the behavior of air streams projected from various types of outlets, ways to control the streams, air-outlet throw data, and equations for the relationship between the velocity at the outlet face, the outlet size, and the highest residual velocity at any cross-section of the stream.

One of the points emphasized was that rule number one in controlling the stream is: Don't try to control it with the return outlet, it's the supply outlet that is important.

"The chief conclusion," Prof. Tuve said in summarizing the discussion of the slides, "is that there are comparatively simple methods of calculating what happens to the stream after it leaves the outlet. Although the calculations are not difficult, a good deal of common sense and judgment are needed."

He reported that, with a few exceptions, the same methods and formulas can be used for calculating the effect with large and small outlets; square or long grilles; punched, bar, nozzle, or slot grilles; discharge from the end of the duct or from the plenum; and straight-flow, wide spread, or small perforated panel.

It was explained that a slot, for example, does not produce a sheet of air as might be thought. Within a few feet from the slot outlet, the stream moves in the same circular pattern that the square outlet produces, he said.

Three exceptions to the general rule were mentioned: large perforated panels with less than 25% free area; very long and narrow slots; and very long runs with multiple outlets (static regain problem).

During the floor discussion period, one of the engineers brought up the problem of how to figure the behavior of air when it is deflected toward the ceiling to avoid drafts on the side of the room opposite the inlets. Another suggested that more information is needed on the behavior of air streams in confined spaces and around obstructions, and on surface clinging.



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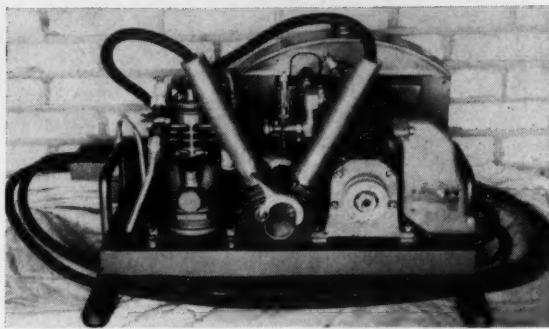
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**New Use for Refrigeration****Portable Unit That Freezes Water Pipes  
Saves Time & Labor In Repairing Leaks**

Developed by a British firm, this portable unit is designed to quickly stop the flow of water in a leaking pipe to permit repairs. Coolant circulated through the V-shaped freezing tool freezes water in the pipe to stop the flow.



MALDEN, England—Repairing of broken or damaged water pipes can be speeded by use of a portable refrigeration unit being marketed by Freez-Seal Equipment Co., Ltd. here, the company claims.

Mechanical refrigeration is employed to freeze the pipes, thus stopping the flow of water while repairs are being made. This, it is said, eliminates the need to shut down and empty the water main; prevents contamination such as by siphoning dirty water from the trench into the main; saves time and labor in the repair job itself and in serving notices to water users that the supply will be turned off.

Weighing 128 lbs., the portable refrigeration unit consists of a gas-line engine-driven methyl chloride compressor and air-cooled condenser, all mounted on an aluminum base. Overall dimensions are 40 in. by 18 in. by 18 in. The condenser and the gasoline tank are combined in a single assembly.

The condensing unit refrigerates coolant which is supplied through a double length of flexible hose to the freezing tool that clamps around the water pipe. A set of copper bushings

is supplied to adapt the freezing tool to various sizes of pipe.

To use the Freez-Seal a "closing tool" and "controlled drip tool" are needed. If lead or copper water pipe is involved, the method is as follows:

First, the water pipe is compressed flat ahead of the break with the pipe closing tool. (For iron pipe a rubber-lined saddle is used instead of the closing tool to seal off the split or defect.)

The controlled drip tool is then fastened on the pipe ahead of the closing tool, and the freezing tool is locked on the pipe upstream from the drip tool.

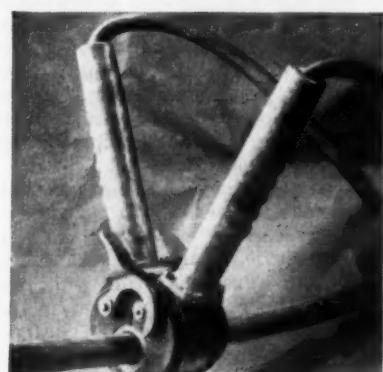
With the drip tool open slightly to allow a small amount of water to drip out the refrigeration unit is started. This gradually freezes the pipe shut at the freezing tool, and then repairs can be started.

The controlled drip tool allows a slight flow of water, thus assuring that the ice plug is formed freely with a hollow center of a gradually diminishing bore, until the final moment of seal, thus preventing bursting of the pipe due to sudden freezing, the company explains.

When the repair job is completed, the freezing tool is removed from the pipe, the ice soon thawing to restore water flow.

Besides its use in repair jobs, the Freez-Seal can also be employed in testing water mains and extensions.

The Freez-Seal is not yet represented in the United States, but the matter is under consideration.

**Speeds Water Repairs**

The freezing tool is in position on a water pipe and will freeze the water at this point. Besides saving the time required to find and shut off the supply valve, it is also claimed to prevent contamination of water and will avoid the job of warning householders that the water will be shut off.

**L. K. Wright, Jr. Speaks to  
Detroit Contractors April 17**

DETROIT—Leonard K. Wright, Jr., field representative for Alco Valve Co. at St. Louis, is scheduled to talk on expansion valves and give a glass evaporator demonstration at a meeting of the Refrigeration Contractors Association of Detroit on April 17, Frederick K. Bolton, secretary, has announced.

The meeting will start at 8:30 p.m. and will be held in the Cloverland Cafe, 12701 Woodrow Wilson Ave. A social hour and complimentary buffet luncheon will follow Mr. Wright's address.

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**550-Ton Unit Operating In 33 Separate Zones****Will Air Condition Huge Rexall Headquarters**

LOS ANGELES—A 550-ton air conditioning system will cool the new World Headquarters building of the Rexall Drug Co. here when it opens this summer, according to Fred Schmid, vice president in charge of construction for Rexall.

The two story, reinforced concrete structure will contain "the world's largest drug store," an office, a dining room, product development laboratories, and a basement multilithing and photo offset room, he said.

It will be divided into 33 separate air conditioning zones, he declared, with each zone having its own automatic control equipment. A single dial in the basement, however, will record conditions in all zones, he added.

York refrigerating machines using "Freon" as the refrigerant provide the cooling. A battery of electrically driven Silentvane fans will circulate the air at a rate of 296,000 cu. ft. per minute, according to Mr. Schmid.

Every five minutes the entire air content of the office building, drug store, and dining room will be completely changed. Twenty-five percent filtered fresh air will continuously be added to the system, he declared.

Anemostat outlets will be used in the office working areas and the store, he said.

To prevent the system from spreading laboratory odors to other parts of the building, all the air used in the laboratories will be discharged directly to the outside and will not be recirculated, he stated.

In the multilithing room a Trane

"Climate Changer" system will be used to maintain the exact humidity and temperature conditions necessary to handle paper and for exact register during multi-press runs.

Sheet metal air ducts are concealed in the ceilings. Those between the first and second floor are insulated with fiberglass. Second floor

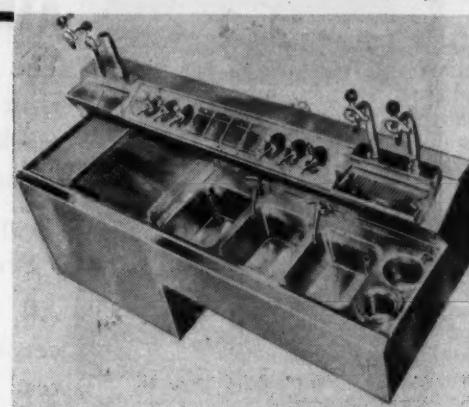
ducts are not insulated in most places because the roof is coated with a two-ply, 2 in. layer of Canec sandwiched with mastic and covered with a layer of aluminum-sprayed pea gravel, Mr. Schmid explained.

Three 125 hp. Titusville boilers will heat the air by steam coils and also provide hot water for the building. These boilers will use natural gas, but are fitted with combination burners so that fuel oil from a 4,230 gal. underground storage tank may be used.

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**SHELL**—Welded Steel Construction.

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**TOP**—20 Gauge polished Stainless Steel.

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Direct expansion copper coils.

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**DRAFT STATIONS**—on 5 ft. boottail—2 draft arms; 6 ft. and over—3 draft arms (2 seitzer and 1 water).

**WORK BOARDS**

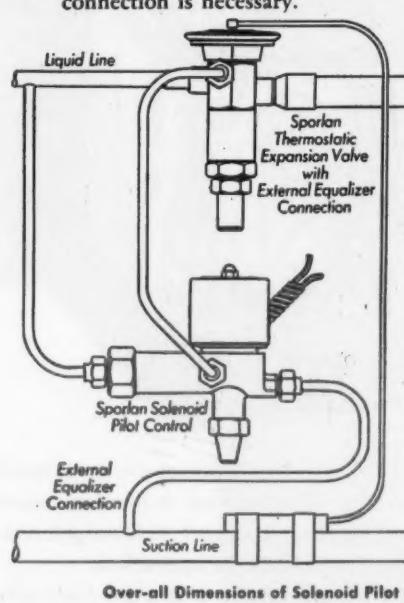
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2 The Sporlan Solenoid Pilot Control eliminates stocking a variety of large Solenoid Valves. The Sporlan Solenoid Pilot Control is made in only one size and can be used on any capacity job, no matter how big.

3 It's easier and cheaper to install a Sporlan Solenoid Pilot Control than a large Solenoid Valve. The Solenoid Pilot Control is installed in the external equalizer line of a Thermostatic Expansion Valve and only one additional  $\frac{1}{4}$ " connection is necessary.

**How the  
Sporlan Solenoid Pilot  
Control Works...**

A very small amount of liquid refrigerant is bled from the liquid line through a fine mesh strainer and capillary tube to the equalizer connection. When the Solenoid Pilot Valve is open, the small leak is completely vented to the low side, allowing the true suction pressure to influence the Expansion Valve diaphragm in the usual manner and allowing the Expansion Valve to operate normally at full evaporator capacity. When the Solenoid Pilot Valve closes, liquid pressure builds up under the Expansion Valve diaphragm, overcoming the effect of the bulb pressure and the Expansion Valve spring closes the Expansion Valve tightly.

**Any number and any size of thermostatic expansion valves  
may be connected to one pilot control**, thus simultaneously

controlling the action of all valves on one evaporator or entire plant. The Solenoid Pilot Control is used in exactly the same manner as a liquid line Solenoid Valve. Its coil is energized either through a thermostat, pressure switch or manual control or by connection across the compressor motor or starter.

**Two wire control is used...**

The expansion valves will be open when the pilot coil is energized and closed when de-energized in exactly the same manner as the conventional solenoid valve. When de-energized the leak from high to low side also stops. The pilot control may be applied to existing jobs merely by connecting with  $\frac{1}{4}$ " copper tubing and completing electrical connections.

Always specify Sporlan when ordering from your wholesaler and get Peak Performance on All installations

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**VALVE SPORLAN COMPANY**



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**Sporlan Manufactures**

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MODULATING PILOT CONTROLS

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STRAINERS, CATCH-ALLS

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TERMOSTATIC EXPANSION VALVES

with SELECTIVE CHARGES

For smaller installations and for ammonia applications Sporlan offers a complete line of conventional Solenoid Valves

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The NAT Corporation of Kansas City

announces  
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**NAT**  
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The Nat Air-conditioning Unit is the only one on the market so constructed as to be easily serviced.

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The NAT Unit comes in 3 sizes:  
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Finished Cracked Brown or Hammered Grey Baked Enamel

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The Nat Corporation also manufactures the NAT Suspended Gas-Fired Unit Heater



## CLEANING AIR DUCTS KEEPS NEW FIRM BUSY

**Airways Fireproofing System, Inc., Started on Shoestring, Has mushroomed in 4 Years**

CHICAGO—"By cleaning and keeping clean air conditioning systems, fan chambers, elevator shafts, kitchen exhaust systems and other places vulnerable to fire, we rightly assume that we are reducing a fire hazard, which, in time, may save considerable property and possibly many lives . . . This is the foundation of our business, the only excuse, really, we have for being in this business."

The above is the motto of one of the country's most unusual small businesses—Airways Fireproofing System, Inc., with main headquarters in Chicago.

#### Had Different Backgrounds

Founded in 1943 by three Chicago men whose widely different occupations were shot from them by war conditions—George L. Candler had been operating a small mail order advertising agency, Paul Vitu was in the caviar importing business, and Timothy Gearon was a restaurateur—Airways business has doubled in volume every year.

The three partners, who started with a stake of \$500, had but one main idea: to perform a badly needed service by cleaning dust and grease accumulations from air conditioning systems, large kitchen range canopies, elevator shafts, etc. They



(Chicago Daily News Photo)  
Two men from an "Airways" three-man crew working their way along a large air duct with cleaning equipment.

realized too that not only would their service make for more efficient operation of such systems and improve health through purer air, but that such good housekeeping would result in a great reduction of fire losses.

The first six months of business-venting, the triumvirate of Airways Fireproofing Systems, Inc. (they chose this name because working crews literally ride the airways) operated from an office in Milwaukee.

#### Made Calls During Day

Days—dressed in regular business clothes, though they didn't wear their best because of the wear and tear involved even in being salesmen—the partners called on prospective customers.

Every operator of a restaurant, hotel, cocktail lounge, theater, bowling alley, department store, industrial plant or even the corner drug store they considered potentially in need of their services.

Any property embracing a cooking range, ventilating ducts, heating or cooling units, elevator shafts, japan-

ning ovens, paint spray booths or acoustical ceilings had need of their ministrations.

And so, after poring over classified directories, they began to make calls, always on managers of large buildings, institutions, hotels, etc., since the service isn't suitable to homes.

No high-pressure sales talk was applied. The men had something to offer, which they explained to customers with quiet informativeness, and the public literally ate it up.

Once they broached the idea to surprised institution owners (who never dreamed they could hope to escape the constant bugaboo of fires by such a simple measure as good housekeeping in their building's "innards") the Airways musketeers were usually invited to make an estimate of what work should be done and what their price would be.

#### Rode Elevator Tops

The estimate was never something plucked casually from a vest-pocket list. It meant riding the tops of elevators to see what condition shafts might be in, crawling through miles of air ducts on hands and knees, hitching a rope around their waists and lowering themselves through 30 stories of smokestacks.

No wonder they didn't wear their business suits!

After receiving a contract to perform a service (they prefer always to sign an agreement that will provide for them to do a cleanup job every year, though they do contract to work by the day or even the hour), they then went home—got into coveralls and sallied forth at night to do the actual work themselves.

They worked at night not only because they had to make calls during the day, but because it was usually most convenient for institutions and buildings, whose activities are at their lowest ebb at that time, to have Airways in action.

#### One Guarded, Two Worked

The partners soon found that "three" was the ideal crew number. For one man could stand watch while the other two did the actual cleaning—and of course constantly ran into dangers that only an outside guard could get them out of.

And don't think they didn't (and the men working for them still do) meet plenty of hair-curling situations. Time after time antiquated elevators would jam, then shoot to the top. By flattening themselves on the elevator's roof where they had formerly been standing, the guard rail would prevent the men from being crushed to death.

Candler, Vitu, and Gearon soon worked out a kit of practical equipment which is used today by their

**AIR CONDITIONING**  
condensers and coolers  
designed and built **FAST**

We design, build, rebuild or rebuild quickly  
any unit with tubes, standard or special, for  
Freon, ammonia, CO<sub>2</sub>. Materials on hand  
for prompt delivery. Emergency maintenance  
work 24 hours a day, anywhere.

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## PRECISION CONTROL

### of Pressure or Temperature

with these  
**RUGGED**  
**LONG-LIFE**  
Control Units



#### BULLETIN 837 TEMPERATURE CONTROLS

Cover a range of temperatures between -50F and 500F. Remote bulb and capillary, immersion bulb, or room thermostat types. Very reliable.

#### BULLETIN 836 PRESSURE CONTROLS

For pressures between 30 in. of vacuum and 700 lb per sq in. Available in types for any service condition.

#### WITH MOTOR STARTER

High pressure cutout and motor starter mounted in the same enclosure. Temperature controls can also be mounted in combination with A-B motor starters to save space and simplify installation.

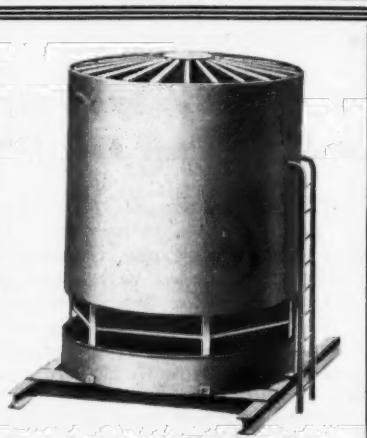


For positive, accurate, and dependable regulation of pressure, specify Bulletin 836 pressure controls. For temperature regulation, specify Bulletin 837 temperature controls. These compact, lightweight, highly accurate units will give millions of trouble-free operations.

All forces in these controls act directly in a straight line, rather than through levers, pivots, or bearings. The precision switch operates with a positive snap action. The switch cannot be jarred open or closed, and is unaffected by vibration. Furthermore, it can be mounted in any position. The silver-to-silver switch contacts never require maintenance. Range and differential settings can be adjusted easily in the field, independently of each other. Available in the open style or in (1) general-purpose enclosures, (2) watertight and weatherproof enclosures, or (3) enclosures for hazardous gas locations. Write, Allen-Bradley Co., 1313 S. First Street, Milwaukee 4, Wis.



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SILENT OPERATION  
CONSERVES WATER - LITTLE SPRAY LOSS  
ALL-METAL FIREPROOF CONSTRUCTION  
EASY TO MAINTAIN**

(No spray nozzles to clog;  
no baffles to replace)

Available in wide range of sizes.  
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for immediate shipment.

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technical description, ratings, list  
of prominent users, write for  
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## Firm's Veteran Training School Spreads Air Duct Cleaning System over the U.S.

(Concluded from preceding page) men. It costs about \$500 to outfit each crew of three men exclusive of car or truck.

The equipment consists of: an industrial blower vacuum (about the size of a home vacuum cleaner), extension hose, extension rods, brushes and every standard vacuum attachment, spray gun, razor blade scrapers, cleaning solution, rags, chemical powder, aluminum paint, chisels, electric or hand drill, extension light, flash lights, drop cloths, a CO<sub>2</sub> fire extinguisher, a kit of general hand tools, goggles and air conditioning masks to be used when dust is so prevalent breathing is otherwise impossible.

Airways charged—and still does—\$15 per hour for a completely equipped three-man crew, which included a working foreman and was known as one mobile unit.

Purchase orders which this reporter was allowed to see show completed jobs, depending on their extent, costing from \$75 to \$5,000.

### Fireproofing Jobs Varied

In actual practice the services performed by Airways are: power vacuum cleaning of ventilating ducts, fan chambers, fans, coils, fins and grilles; removing inflammable dirt and grease deposits from restaurant kitchen exhaust systems with special scrapers and grease solvents; and washing down elevator hatches, machinery, etc. Fire and dust resistant paint is also sprayed where desirable.

After six months in Milwaukee the partners, who were already financially able to hire crews, although they still had to remain on "emergency" call, turned the Wisconsin office into a branch and established their headquarters in Chicago, which is "home" for all of them.

About this time Candler entered the *Reader's Digest* \$25,000 contest for written descriptions of interesting and unusual small businesses.

With his colorful descriptions—and certainly he had something unique to write about—Airways Fireproofing System, Inc. was a winner among 40,000 unusual enterprises entered in the contest.

A brief summary of their business was then included in the Digest's special issue: "A Business of Your Own."

### Letters Poured In

And letters began to pour in from not only all over the country but literally from all over the world—from Canada, Germany, Japan, Alaska, etc.

It was 1944 and servicemen, anticipating a discharge, recognized in this new service a vocation they would like to enter.

They wrote asking for details. At first the partners tried to answer each man individually but as the letters flowed in by the hundreds it became an impossible accomplishment.

So they set up a two-weeks school for vets. This was not difficult, for at one time Candler had been personnel director for a large refrigeration and air conditioning trade school and was well-versed in the know-how of teaching the lads the business so they in turn could go back to their home cities, start such a service and have a well-paying vocation.

### Studied Days, Worked Nights

During a two-week training period the boys were given explanatory lectures covering the work, along with text material. They got actual, and thorough, experience in every type of operation by working nights as regular crew members. They were given detailed mimeographed sheets covering the "how-to-do-it" angle of every job, from air conditioning systems to smokestacks, in case later some phase of the work might have slipped their mind. And, finally, they were even taught simple book-keeping, filing and recording systems so that they would know how to set up their own office.

The cost to each lad was \$300 and for every hour he worked as a crew member the partners paid him \$65 to defray his living expenses away from home.

For this investment of \$300 the boys not only received training in a trade but were then equipped to open an office in their home-towns, with the privilege of using the name, "Airways Fireproofing System." Once they open an office, however, their business was completely theirs. They did not have to pay the partners any percentage of their profits. The one stipulation the partners made was that no rival businesses should be opened in Chicago, Milwaukee, or Los Angeles—where Airways hopes to open a third office.

### \$10 Monthly Newsletter

For \$10 a month, to cover mailing expenses, the partners provide the vets with news letters, suggesting ways to improve operations, get new customers, etc.

Some of the lads have done remarkably well in their ventures. One of them, a Canadian, has in the space of two years opened offices throughout Canada.

The vet training, though, is mostly over now—they receive only an occasional letter from a lad who wants

to "learn the business"—and the partners are once again devoting all their time to their own organization.

George Candler has been elected president, Tim Gearon, vice president, and Paul Vitu, secretary and treasurer. Gearon and Candler make the "selling" calls—still exploring air ducts and riding elevator tops.

Vitu has become the "inside" man, handling office details, making crew assignments, keeping equipment in order.

### Fearless Men Needed

The partners now have several crews, of three men each, working for them. They have found they must employ reliable men, who have no fear of danger, with the agility of monkeys to squeeze into tight places, scale shafts, etc., who are alert enough to protect themselves against an elevator being started or an air fan turned on, and who are honest enough not to touch belongings on premises where they are working. In order to attract and keep the right type of men the partners provide annual vacations and have a bonus arrangement.

They are finding that much of their business is "repeat," that this hotel and that restaurant are only too glad to have them back for another cleanup job. Eventually, they hope, all their business will be done with contracts providing for regular servicing, usually once a year, of a building's stacks, ducts, and shafts.

Some of the nationally known organizations now being served by Airways include Walgreen's, Steinways, Pick Hotels, Interstate Restaurants, Triangle Restaurant, International Harvester, Inland Steel, Sears, and Ward's stores.

## Restaurant Show Accents

### Need of Air Conditioning

ST. LOUIS—Attracting major interest at the Electrical Restaurant Show held here last month were air conditioning and ventilating equipment in the sanitation displays.

This action was partially the result of a recent St. Louis ordinance setting up sanitary requirements, with provisions for periodical inspections, for public eating places. The health department cited the lack of interest of employees as the chief factor in poor sanitation.

With this in mind the air conditioning and ventilating exhibits provided the means for the restaurant operator to improve the morale and efficiency of his employees through better ventilation and working conditions. It was further pointed out that the use of air conditioning will eliminate odors and flies—two big problems in eating places.

### Hot Food Storage Table Reduces Ventilation Costs

CHICAGO—Restaurateurs seeking to improve operating economy by reducing costs of ventilation and air conditioning have a solution in the electrically controlled hot food storage table, according to Grant Call, manager, electric commercial cooking division, Hotpoint Inc.

Mr. Call said that with air conditioning standard equipment for new or remodeled restaurants, a food storage table reduces operating overhead.

## Carrier Installation

### At Schlitz Brewing Co. Cuts Down Flash Gas

MILWAUKEE—Installation of a Carrier Corp. centrifugal refrigeration system is provided in a \$1,000,000 expansion program now under way at Joseph Schlitz Brewing Co. of Milwaukee. Plans include a new boiler plant and brew house, to increase plant capacity beyond 3,000,000 barrels per year.

The Carrier equipment includes a steam driven centrifugal machine with a capacity of 450 tons of refrigeration. All of the liquid ammonia refrigerant for this part of the system will be flashed to a temperature of 11° F., which will, in effect, reduce the flash gas to a negligible quantity.

This is important, according to Carrier engineers, since practically 20% of the return gas in the suction lines is flash gas. The equipment also furnishes the liquid at a constant pre-determined pressure throughout the year. Using condensing water of varying temperature with hand expansion valves, floodback does no harm in the centrifugal system.

Drive force is provided by a back pressure turbine with steam entering at 415 pounds gauge and 700° F., and exhausting oil free steam at 125 pounds into the low pressure steam mains. The back pressure turbine replaces steam pressure, reducing stations and extracts power for refrigeration while improving the overall plant heat balance. Provision is being made in the piping layout for addition of another Carrier centrifugal machine of equal capacity.



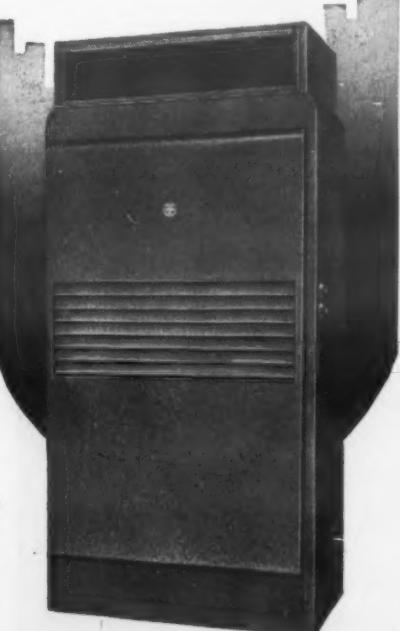
The handsome compact appearance of the **TYPHOON** self-contained air conditioning unit belies its rugged construction—an engineering achievement backed by over 30 years of practical experience.

Each unit is made to deliver full rated capacity under most difficult conditions—12,000 BTU's of air conditioning performance for every ton of rating. **TYPHOON**'s exclusive large flo-turn cooling coils and the oversized all-copper condenser, are two of the many features that make for trouble-free performance and maximum customer satisfaction.

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A few dealer territories are still open

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### Refrigeration and Air Conditioning Equipment

The soundness of Curtis equipment is apparent in every detail of design, engineering, materials and construction. Its record of high efficiency and low operating and service expense has won friends with dealers and users everywhere.

#### Curtis features include:

1. Timken Bearings that assure lower power consumption.
2. Extra large condensers.
3. Self-oiling—positive lubrication.
4. Slow speeds—longer life.
5. Quiet operation.

You can sell Curtis with confidence—for almost any refrigeration or air conditioning requirements.



Curtis Packaged Air Conditioners—3, 5, 7 1/2, 10, 15 tons.

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APPLIANCE TRUCK**

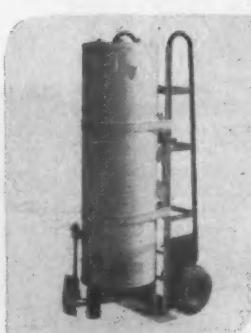
YOU'VE got 11 big features in this new Easload Truck that take strain and pain off your shoulders when moving heavy appliances.

The entire weight of the load rests on the 10-inch rubber tired roller-balanced wheels. When the truck is erect, the wheels lock in forward position, and the Easload slides smoothly under the refrigerator, range or radio. As the load is picked up, a convenient foot pedal releases the wheels and they swing back, locking in balanced position to carry the full burden of the load... Loading and unloading is eased by the small rubber wheels under the toe plate.

There's a double ratchet to cinch the straps. The one-piece curved tubular handles slide down steps with the wheels locked in forward position. Full protection to appliances is gained by rubber frame protectors. Rubber covered axle nuts avoid damaging other merchandise when squeezing truck in tight spots... Comes equipped with 12-foot heavy webbing strap.

Save backs, time and service costs with this new Easload Appliance Truck. Order today from your distributor, or direct. Literature sent on request.

*Sturdy All-Welded Tubular Steel Frame  
Capacity 2000 lbs. Weight 64 lbs.*

**Refrigeration Problems****And Their Solution****By P. B. Reed****For Service and Installation Engineers**

Manager, Refrigeration and Air Conditioning Division, Perfex Corp.

**Properties of Water  
Important In Cooling**

Water is peculiar stuff. Although it is a liquid it is formed of two gases, hydrogen and oxygen. Water will not burn and in fact will quench most fires and yet the hydrogen is highly flammable and the oxygen is what makes the burning possible. In fact, feeding oxygen to burning hydrogen makes a very hot flame that is used in welding. Water is the "ash" that is produced when hydrogen is burned.

Water is one of man's most valuable possessions; more valuable than gold or precious jewels; more valuable even than iron, copper, or tin. And there is plenty of it.

All animal and plant life depends directly on water for building tissue and sustaining life, even though in some instances the amount of water required is very small. Man, for example, can live longer if deprived of food than if he is deprived of water. We live and breathe at the bottom of a sea of air and water vapor.

In refrigeration, water plays many parts. It is the agent of most primary power, steam or hydro-electric. It is the carrier that takes the heat from water-cooled systems and disposes of it elsewhere. It is the chief constituent of brines that also act as carriers of "cold" from one place to another.

Its ability to absorb and carry away heat, is the highest of any of the common liquids; in fact water is used as the standard for this ability (specific heat) and our system of measuring heat (B.t.u.) is based on water.

**WATER AS A VAPOR**

When it changes to its vapor state—steam, water has the greatest "latent heat" capacity of any of the common liquids. The vaporizing of  $2\frac{1}{2}$  gallons of water absorbs as much heat as 1,000 gallons of water rising  $20^{\circ}$  in temperature would carry away; hence the evaporative condenser or spray tower.

Water vapor is so light, however, that when water is used as a refrigerant in compression refrigerating systems, centrifugal type compressors are required in order to circulate and compress the large volume of water vapor. In absorbing systems water may act as the absorbent (as in ammonia absorption systems) or as the refrigerant (as in lithium absorption systems).

**WATER AS A SOLID**

When changing from its solid form—ice, water absorbs a great deal of heat; 144 times as much as the same amount of water absorbs merely in rising  $1^{\circ}$  in temperature, but only about  $\frac{1}{7}$  as much as water

absorbs in changing to vapor. Water ice was our first practical method of producing refrigeration for widespread and practical purposes and, although supplanted in many uses by direct means of producing refrigeration, still remains a valuable means of refrigeration.

Water in its various forms and in its many uses, is one of the most valuable servants in refrigeration; nevertheless, in some of its activity and in some of its forms it must be carefully controlled or it may become an enemy.

The moisture content of refrigerated air must be carefully controlled to permit its maximum usefulness for the storage of perishables, for various industrial processes or for the comfort and health of human beings.

In some places in refrigerating equipment we find water undesirable. To the fullest extent possible, water must be removed from and kept from entering the inside of a refrigerating system, for, at best it causes corrosion and at worst it freezes in cold orifices and blocks refrigeration. It gathers as frost or ice on the tubes and fins of cold evaporators and impedes or obstructs the flow of the air through the coil.

Water is undesirable in electric equipment, motors, controls, transformers, and on or permeating electrical insulations of all kinds and in all locations.

Combining with other materials and especially in the presence of air, water corrodes many materials used in the construction of refrigerating equipment, especially iron and its alloys. Paints and various other treatments are given to surfaces to give them protection against corrosion, of which water is one of the principal causes.

**A PECULIAR PROPERTY OF WATER**

Water has one very peculiar property that is frequently overlooked, but which has a very important effect in refrigeration. At about  $39^{\circ}$  it reverses its direction of flow of natural convection.

Putting it another way, the maximum density of water is at  $39^{\circ}$  F. and if it is either warmed above  $39^{\circ}$  F. or cooled below that, it becomes lighter and rises.

Thus, if we have a tank of water at  $50^{\circ}$  or above and we put a  $30^{\circ}$  cooling coil in it, along one side, the water touching the coil is cooled, and becoming heavier, drops to the bottom of the tank, forcing to the top the warmer, lighter  $50^{\circ}$  water.

This sets up a natural convection circulation as shown in Fig. 1, with the cooled water dropping away from the coil and the warm water rising to the coil.

**REVERSED FLOW AT  $39^{\circ}$** 

This continues until the temperature of the water in the entire tank reaches  $39^{\circ}$ . The warmer the water is above  $39^{\circ}$  the faster will be the circulation, for the greater will be the difference in density (weight) of the water before and after it is cooled. As the tank of water becomes colder, that is, the nearer to  $39^{\circ}$  that it becomes, the slower will be the rate of circulation, and consequently the slower will be the rate of cooling.

Finally, when the water becomes  $39^{\circ}$  the natural circulation stops altogether. The rate of cooling becomes quite slow also, for then conduction is the only means of cooling the water, whereas, before, convection brought the warm water in contact with the cold coil, and after it was cooled, took it away and replaced it with more warm water.

*(Concluded on next page)***BE APPLIANCE-WISE!**

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Sized for every need—7x7x7 to 7x19x7.

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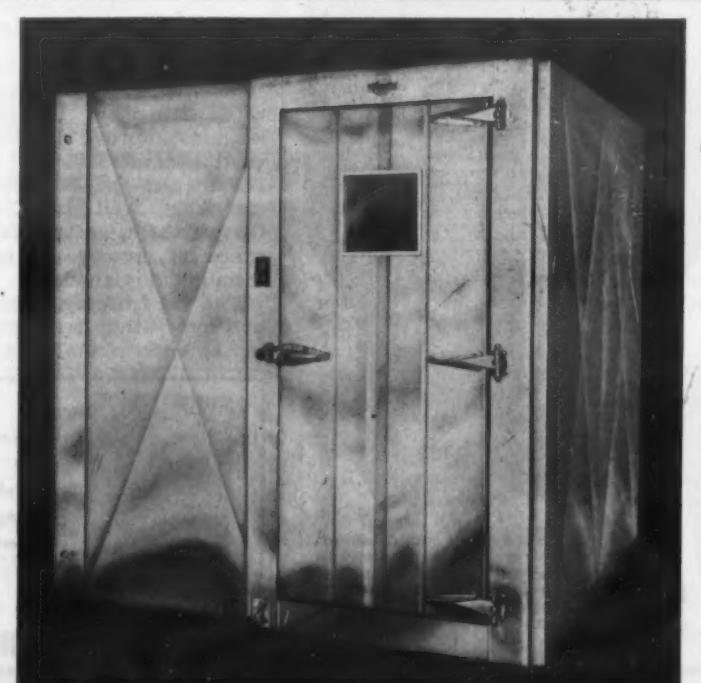
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Each product built is the greatest value in the field.

**Our 17th Anniversary****DELAWARE REFRIGERATION COMPANY**

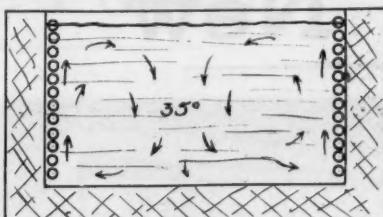
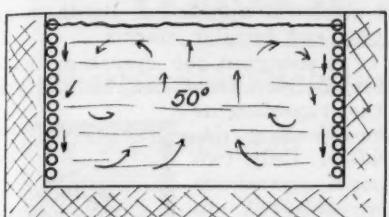
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MODEL AF-777

**COLSON EQUIPMENT & SUPPLY CO.**  
1317 WILLOW STREET LOS ANGELES 13, CALIFORNIA

**Water Circulation Varies with Temperature**

Water above 39° F., as shown in Fig. 1 at left, does not circulate in the same manner as water below 39° (see Fig. 2 at right). This phenomenon has an important bearing in deciding where to locate an evaporator coil in a water tank.

**Circulation Varies--**

(Concluded from preceding page)

**CIRCULATION AT A STANDSTILL AT 39°**

So at 39° the circulation is at a standstill and cooling is going on at a minimum rate. If the coil is still held at 39° it continues to cool the water touching it and near it. Since it becomes cooler than 39° it becomes lighter, so the water below 39° rises, being displaced by the heavier 39° water and the cooled water goes to the top. This sets up a natural convection circulation as before, but in the opposite direction than before as will be seen by comparing Fig. 1 and 2.

**MINIMUM RATE OF HEAT TRANSFER AT 39°**

Since at 39° the circulation stops, cooling is quite slow. When the water starts to cool below 39° the circulation starts again, but in the reverse direction and the rate of circulation is, at first, quite slow.

As the cooling continues and as the water becomes colder than 39° the circulation speeds up as the difference between 39° and the water temperature increases and consequently as the difference in density becomes greater.

**EVAPORATOR NEAR TOP**

If we wish to maintain a water temperature above 39° (above the temperature of maximum density) the evaporator coil should be placed in the bath toward the top of the water so that as the water is cooled and becomes heavier, it would drop and cause a vigorous circulation.

If the evaporator coil were placed near the bottom of the tank, the cooled water would, being heavier, stay at the bottom and there would

be practically no circulation; consequently, the rate of cooling would be slow.

**EVAPORATOR NEAR BOTTOM**

If, however, we wished to maintain a water temperature of about 35° it would be well to have the evaporator coil toward the bottom of the tank. Then the water near the coil, as it cooled, would be displaced by the heavier, warmer water and would, therefore, rise and would thus promote more rapid cooling because of increased rate of circulation.

In some applications, such as submersion type milk-coolers, the water may at times be quite warm due to the cooler being loaded with several cans of warm milk at one time. Then it is desirable to have the evaporator toward the top of the water to speed up circulation and the rate of cooling down to 39°.

These coolers are usually maintained at about 36° to 40° which would call for the evaporator being located toward the bottom of the tank. In actual practice a coil is used in these coolers, a part of which is near the top and parts near the bottom, that is, distributed all up and down the walls, somewhat as is shown in Figs. 1 and 2. Forced circulation by means of a small pump is quite common also.

**A FANTASTIC SPECULATION**

It is interesting to speculate on the results if the maximum density of water were at some temperature other than 39°. If the maximum density of water happened to be at or very near 32°, freezing would start from the bottom of the tank instead of the top. In nature this would mean that ponds and lakes would start freezing from the bottom and when the top finally did become frozen so that it could be skated on, there would be no danger of breaking through for the ice would be solid clear to the bottom. There could be no fishing through the ice; the fish would all be frozen in, probably near the surface. Animal life as we now know it in fresh water especially, would be impossible.

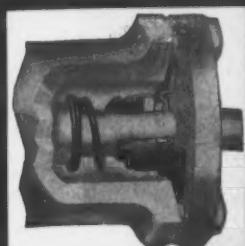
**Authorized Refrigeration Parts Moves to New Site in St. Louis**

ST. LOUIS—Authorized Refrigeration Parts Co., parts and equipment wholesaler here, has moved to 301 S. Vandeventer St., according to a company announcement.

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**Michigan RSES To Meet In St. Johns April 29**

ST. JOHNS, Mich.—Another statewide meeting of Refrigeration Service Engineers Society members from Michigan will be held in the hotel here Tuesday, April 29, beginning at 2 p.m., announces C. H. Earl of Bay City, Mich., secretary of the group.

**Water Cooler Expansion Planned by Pottery Firm**

SAN JOSE, Calif.—Expansion of its terra cotta water cooler manufacturing facilities has been announced by the Garden City Pottery Co., 560 North Sixth St., which recently began work on a \$45,000 addition.

**Canadian RSES Elects New Officers**

Only four of the seven officers who will guide activities of the Interprovincial Association of the Refrigeration Service Engineers Society this year could be corralled by the photographer, so here are (left to right) W. M. Maybee, sergeant-at-arms; M. J. Turner, second vice president; President A. J. Pike, and A. Doan, educational chairman. Other officers elected at the recent Montreal meeting include A. Olmstead, first vice president; E. G. McCracken, secretary, and G. Condie, treasurer.

**"TESTED BY USE" PREFERENCE PUTS RANCO IN THE LEAD**

Preference, by the industries it serves, for Ranco's "Tested-by-Use" Controls have for years placed Ranco in the position of the world's largest manufacturer of automatic refrigeration controls.

Ranco has met the challenge entailed in this leadership by following this policy:

1. Conducting continuous experiments for the improvement and refinement of commercial and household refrigeration controls. (Ranco holds more than a score of "firsts" in the development of refrigeration controls.)
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3. Maintaining high production so that controls can be priced to jobber and service man to assure each a fair profit.
4. Maintaining jobbers' stocks so that any request for an exact or general replacement control can be filled without delay.

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**Ranco Inc. COLUMBUS 1, OHIO**

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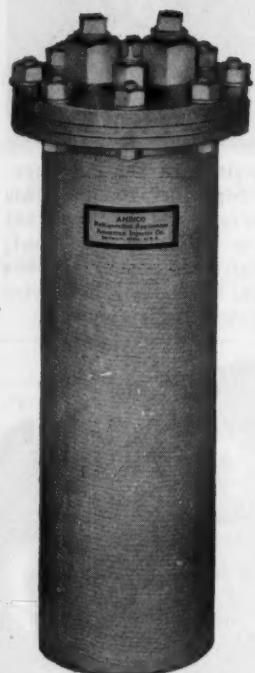
Put the planning and production departments to work—with orders to make the finest unit on the market. Inside—outside—in looks—in construction. Do it RIGHT—we said!

It's done—ready for you and ready for your customers. We think it is the finest unit that JORDON has ever produced—and that's saying a lot when you consider JORDON'S quality reputation.

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George L. Boone & Son, 741 G. M. Bldg., 1775 Broadway, New York 19, N. Y.  
William H. Cody, 2nd Unit, 10th Floor, Santa Fe Bldg., Dallas, Texas  
Export: Borg-Warner International Corp., 310 S. Michigan Ave., Chicago, Ill.

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Please send me a FREE copy of the new Gold Bond Zero Cel Booklet, "Fireproof Refrigeration Construction." A-4

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City..... State.....



## What's New



The model at right demonstrates the relative ease of selecting frozen foods when using the new Frosted Food O'Mat. As many as 20 different packaged items can be set up in a row so that patrons of a store or supermarket can serve themselves by pushing any of the buttons below the display pictures along the top.

### Push-Button Case Ejects Frozen Food Packages

PITTSBURGH—Production of a self-service frosted food dispenser which ejects a package at the touch of a button has been announced by Frosted Food O'Mat, Inc., here.

Distribution of the units to franchised distributors will begin in the latter part of May, according to the company.

The Frosted Food O'Mat was designed, after two and a half years of research and development, to make shopping for frosted foods as easy as selecting packaged goods from a grocer's shelves, the company declared.

It provides space for as many as 20 different packaged items to be set up in a row.

Along the upper portion of the white, all-steel cabinet, a fluorescent lamp lights a row of display windows. Below the windows are listed the names and prices of the foods displayed along with the push buttons by which the packages are delivered to the customer.

Manufactured in two models for either wall or island installation, the units are equipped with an automatic defroster and an "infallible mechanism" for ejecting the packages, according to the manufacturer.

"Also used in the cabinet are certain refrigeration principles which keep packages frost free and prevent them from sticking together," the company stated.

The cabinet is said to handle almost all sizes of packages and may be stocked with whatever brands the merchant desires.

The Frosted Food O'Mat will also be manufactured on the West Coast, the company declared.

### Fan Timer Adapted to Use With Various Appliances

INDIANAPOLIS—A wide range of applications is claimed for the "Comfortrol," an automatic time switch for turning on and off electric fixtures and appliances, manufactured by the Holcomb & Hoke Mfg. Co., Inc., here.

Originally developed for use with

the company's ventilating fan, the Comfortrol is said to be adaptable for automatic control of such items as electrical appliances, lights, neon signs, and burglar alarms.

It is designed for operation on a 24-hour cycle, and can be set for either repeating or non-repeating operation. Only two simple operations are required to turn the appliance on and off at a given time.

Manual turning on or off may be accomplished without interfering with the setting, the company points out. The face is graduated into quarter hours to assure accurate setting.

Maximum load of the Comfortrol is a ½-hp. repulsion-induction, condenser, or capacitor motor, or a ¼-hp. split-phase motor with 115 volts, 60 cycles needed for operation of the control.

It is finished in chromium and stainless steel and will fit over any standard wall outlet, according to specifications. It is claimed that no dangerous wires or connections are exposed, as the entire unit is enclosed in a case measuring 4 ¼ x 3 ¼ x 2 in.

### Penguin Bar Makes 63 Ice Cubes Simultaneously

NEW YORK CITY—The Penguin deluxe refrigerated bar for homes, offices, and showrooms, is now being distributed exclusively in both foreign and domestic markets by the Mann Refrigeration Supply Co. here, according to a company official.

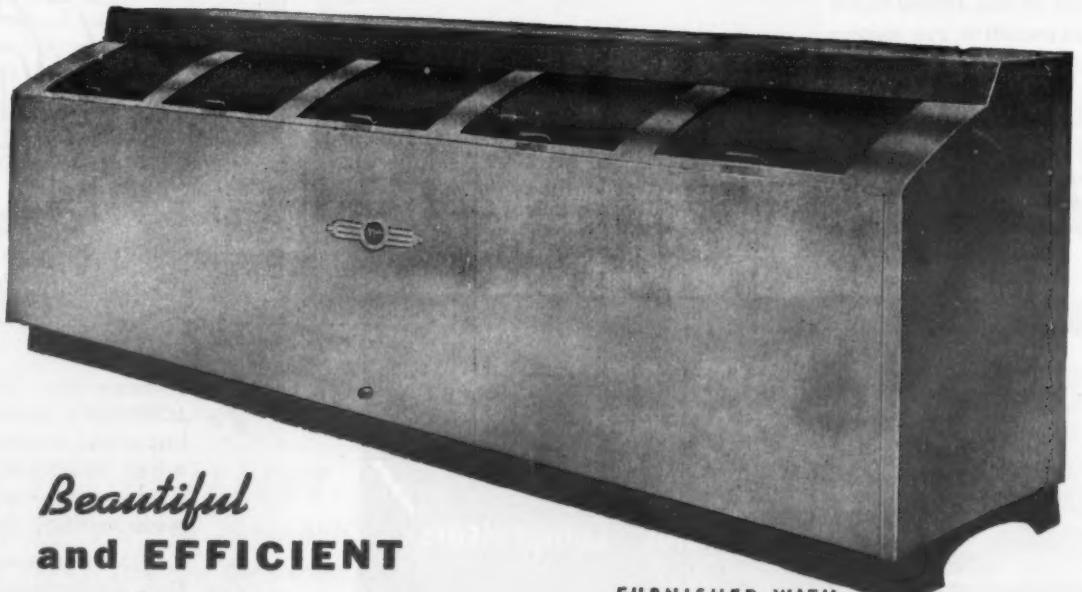
The bar, manufactured by Springer Industries of Ocean Gate, N. J., is equipped with a ½-hp. universal hermetically sealed compressor carrying the original factory warranty, according to the distributor.

The Penguin bar measures 49 ½ in. high, 36 in. wide, and 18 in. deep. It provides more than 3 cu. ft. of refrigeration and can make 63 ice cubes at one freezing.

Other features are fibre glass insulation, a separate liquor compartment with lock and key, a stainless steel serving tray, and mirrored back and base in the serving section. It has a net weight of 225 lbs.

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★ COOLERS AVAILABLE IN 4-6-8-10 FT. LENGTHS  
SOME DOMESTIC AND FOREIGN TERRITORIES OPEN



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Modern in design and made of polished aluminum and stainless steel—the Nolin Cooler is a thing of beauty and an asset to the appearance of any store. Efficiently engineered and insulated with Armstrong approved Fiberglas and heavy sisal craft water proof seal—it has ample cooling surface in three large heavy-duty copper fin coils, which requires no defrosting. Assuring years of trouble-free service—THE NOLIN STAYS COLD.



### Features

Designed for the convenience of the user. The Nolin features disappearing doors that slide into the cabinet or can be removed altogether. Removable base—freezing shelf for glasses or candy bars.

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## Servicing Truck Refrigeration Units

**Editor's Note:** Major component parts of a typical truck refrigeration system employing hold-over plates are described in this instalment of the Truck Refrigeration Unit series. This section was prepared with the assistance of Kold-Hold Mfg. Co., a manufacturer of truck plates.

### Instalment No. 29

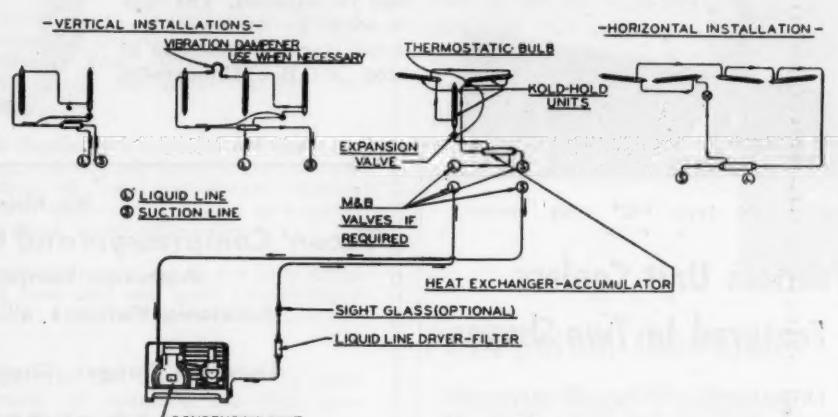


Fig. 3 shows the connections of the truck refrigeration system, either remote or with condensing unit mounted on the truck, using methyl chloride or "Freon."

#### Typical Truck System

There are two main aspects in a typical truck plate refrigeration system—the plate system on the truck itself, and the condensing unit

and flexible "charging" lines in the plant where the truck plates are recharged over night.

Schematically, both halves of such a system using "Freon-12" or methyl chloride as the refrigerant are shown in Fig. 3. The plant half of this system is quite similar to any conventional installation except that the refrigerant liquid and suction lines end in flexible "make-and-break" valves which can be connected to corresponding valves on the truck.

The truck half of the system includes the make-and-break valves, a heat exchanger-accumulator, expansion valve, and the plate or plates. If a methyl chloride or "Freon-12" condensing unit is mounted on the truck, the make-and-break valves are eliminated.

In an ammonia system (see Fig. 4) no heat exchanger is employed, and the expansion valve is usually incorporated in the plant half of the installation. Another important difference between ammonia installations and those with "Freon-12" or methyl chloride is that black iron or steel pipe must be used with ammonia while copper tubing may be employed with the other refrigerants.

#### Plate Arrangement

Plates in a truck (there are almost always at least two) are connected in series, and can be mounted in number of ways. A popular arrangement is shown in Fig. 1, where the plates run vertically from side to side, forming partitions in the truck body. Another layout mounts the plates on the sides of the truck, as shown in Fig. 5. Ceiling mounting is often employed, and combinations of these three general arrangements are frequently used. Fig. 3 shows four possible arrangements.

Actual mounting of the plates is achieved by metal straps or clamps fastened to the walls, ceiling, or floor of the truck body. The clamps or straps do not come in direct contact with the plates, for this contact would permit too much heat to be transferred outside the body through metal-to-metal conduction.

Instead, split and grooved wood blocks which grip the edges of the plate are fastened to the mounting clamps. These clamp supports are also intended to take up some of the road shock and vibration encountered in truck operation.

There is no set arrangement for the order in which refrigerant is fed to a series of truck plates. It is recommended, however, that vertically mounted units be fed ahead of horizontally mounted units. The tubing or pipe runs should be sufficiently long to relieve them of any strain resulting from body weave and vibration.

It may be advisable in some instances to install vibration absorbers in the lines. Some trucks, however, have operated successfully for several years without vibration absorbers and have had no trouble with line breakage. Looping of lines also aids in reducing vibration strain.

It is important to make sure the refrigerant circulation is always into the "in" fitting and out of the "out" fitting of the plates.

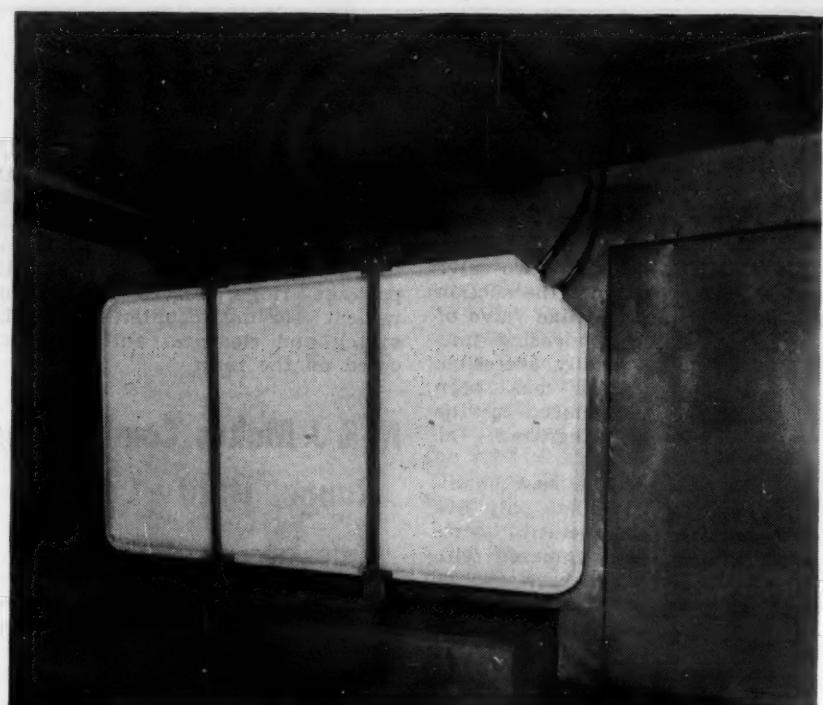


Fig. 5—This is one way plates may be mounted in a truck.

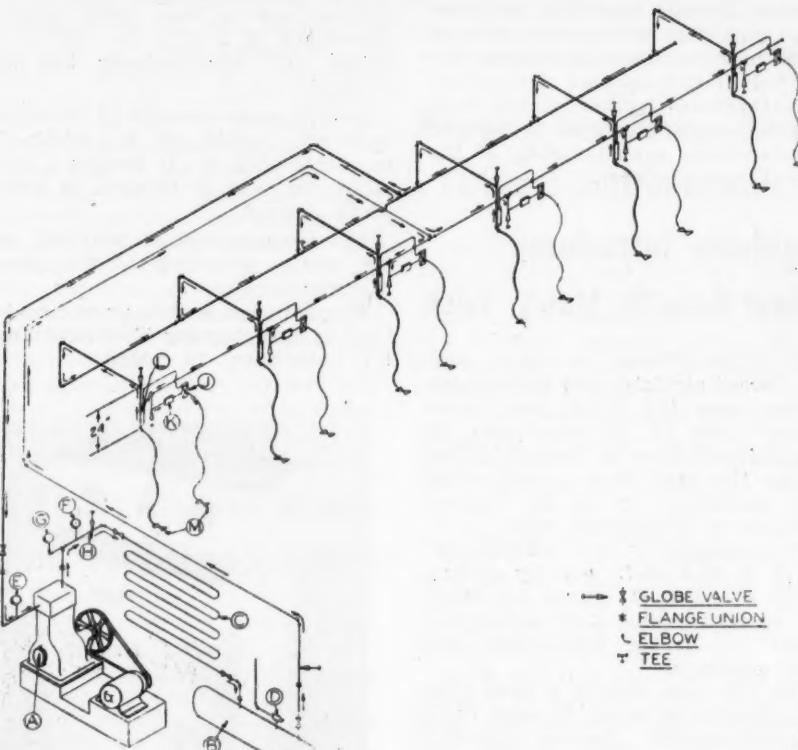


Fig. 4 depicts a typical ammonia plant hook-up for trucks using plates. "M" shows the make-and-break connections used to connect the system to the truck.

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A freezer is not just a storage bin for commercially frozen foods. Its greatest value is its ability to quickly preserve fresh foods when properly prepared and packaged in the home. This is a major selling point—and you've got to know your packaging to obtain buyer interest.

That's where the Zer-O-Kit, pictured below, comes in, MR. FREEZER MERCHANT—it has everything needed by your customer and you.



The sale of a ZER-O-KIT is profitable to you—financially and in customer satisfaction. If you are a dealer, see your distributor for further information. Distributors—contact us for a complete story on the ZER-O-LINE.

**Yorkville PAPER CO., INC.**

431 East 77th Street, New York 21, N. Y.

## Dealers Split In Discount Poll--

(Concluded from Page 1, Column 3)

The statement of R. E. Imhoff, vice president of the appliance division of General Mills, in replying to the letter, points up a good argument against any set "standard" discount. Said the General Mills reply:

"We are in complete sympathy with the idea that trade discounts must be consistent with today's selling and distribution costs and that a fair profit, consistent with the services performed, must result for everyone concerned. We are not, however, of the belief that retail prices can be increased beyond the point where the public is unable or unwilling to pay, just so discounts can be established at some commonly accepted figure. If that is done, then certainly the much discussed collapse of our business economy will soon follow."

The Alter Co., summing up the factors which seemed to evolve from

the answers to its questionnaire, pointed out that—

"There is no universal pattern (of merchandising) for retailers. Some prefer low rent off-the-path locations and more advertising or aggressive outside selling, while others want top locations, high rents, and no advertising or outside selling."

"Thus in all of this, the question of discount becomes merely relative and dependent directly on sales volume and turnover. Given a large enough volume and fast enough turnover, a 10% discount could make good money for a dealer, and if sales drop out of sight a 60% discount won't help. One thing is certain—a manufacturer must set up his discount schedule liberal enough to accomplish the job he wants done. There is no point in having a good product with a low list price if the discount is so short that it doesn't adequately reward the dealer for his salesmanship."

Some variations in the vote by different types of dealers turns up an interesting note. Appliance dealers were about equally divided, although those doing the largest volume preferred short discounts by a 2 to 1 vote. Furniture stores still like longer margins, while department stores generally seemed to prefer lower list prices and short discounts.

The arguments advanced by the Nera committee in advocating longer discounts center about the contention that as the going on sales gets tougher, the retailer's sales expense will jump.

"We are all well aware that manufacturers' costs have risen, but they should not forget that dealers' costs have gone up too," stated K. J. Stucky of Stucky Bros., Ft. Wayne, Ind. "The lower margin of the last few years has gone hand in hand with reduced sales efforts. If continued, low margins could eliminate volume distribution and production."

Harold C. Taylor of the L. C. Taylor Co., Pasadena, Calif., says that "Before long, advertising, promotion, and sales expenses for the dealer are sure to go up. Trade-ins will move back into the picture, and an occasional discount on floor samples will be necessary. Rents in Pasadena are now higher than I can ever recall. Manufacturers should certainly realize that before a dealer can increase his overhead, he must have the margin to take the strain."

It is the opinion of the Nera committee that manufacturers who do not show sufficient consideration of the dealer's position to see that dealer trade and cash discounts are passed on by distributors are not cooperating to the extent that they should. Instances where manufacturers have left the matter of trade discounts up to distributors, the Nera committee's investigation reveals the discounts are considerably under 40%.

Declared Julius Kovach of Paramount Good Housekeeping Shop, Racine, Wis., "It is evident that many manufacturers allow their distributors actually to control, not only retail prices, but the dealer margin of profit as well."

the mixing of inflowing cold water with that already heated.

Commenting on the firm's move in entering this field, Mr. O'Hara stated that it was logical from two standpoints:

1. That only one home in 10 has an automatic water heater of any kind, thereby making the theoretical sales potential nine homes out of every 10.

2. That introduction of a water heater rounds out a complete line of major household appliances.

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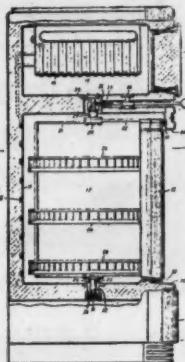
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## PATENTS

Week of Jan. 28

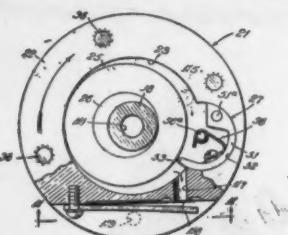
(Continued)

2,414,529. COMBINED CLOSURE AND RACK FOR REFRIGERATORS. Victor Civkin, Fairfield, Conn., assignor to General Electric Co., a corporation of New York. Application Dec. 14, 1943, Serial No. 514,233. 5 Claims. (Cl. 312-186.)



3. A cabinet comprising walls forming a storage compartment and having a door opening therethrough, a shelf supporting structure arranged in said compartment and mounted for rotation about a central axis therein, a door for said door opening arranged within said compartment and mounted on said structure for rotation therewith, a sealing means for said door arranged about said door opening, said door in its closed position engaging said sealing means, and means constructed and arranged to be effective upon initiation of the opening movement of said door for releasing said door from engagement with said sealing means to prevent rubbing of said door along said sealing means.

2,415,011. MOTOR COMPRESSOR ASSEMBLY. Earl F. Hubacker, Highland Park, Mich., assignor to Borg-Warner Corp., Chicago, Ill., a corporation of Illinois. Application Sept. 18, 1942, Serial No. 458,891. 4 Claims. (Cl. 230-738.)



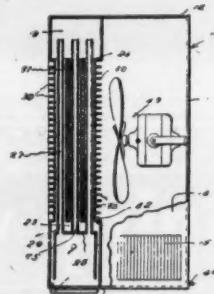
3. In a motor compressor unit, including means defining a sealed enclosing housing, a motor and compressor assembly supportedly carried within said enclosing housing, said compressor comprising an annular rotatable ring formed therein with a cylindrical compressing chamber, means defining a cylindrical member eccentrically arranged within said compressing chamber, means defining a divider blade assembly including a blade-like portion, means supporting said blade-like assembly on said annular rotatable

signer to Bohn Aluminum & Brass Corp., Detroit, Mich., a corporation of Michigan. Application Oct. 20, 1943, Serial No. 506,984. 10 Claims. (Cl. 62-8.)

ring for arcuate movement of said blade-like portion into and out of engagement with the outer periphery of said eccentrically disposed member for dividing said chamber into a high pressure zone and a low pressure zone, spring means urging said blade-like portion in a direction away from engagement with the periphery of said eccentrically arranged cylindrical member with a predetermined torque, said blade assembly further including a pocket having therein a material of higher specific gravity than the material defining the divider blade assembly to provide centrifugally-responsive means effective to move said blade-like portion into engagement with said eccentrically arranged cylindrical member in opposition to the action of said spring upon the rotation of said annular ring at a predetermined speed, and means for delivering refrigerant to said compressor.

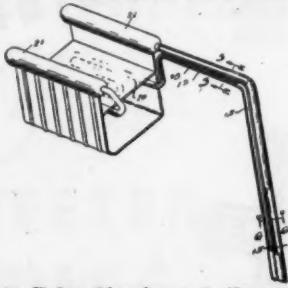
Week of Feb. 4

2,415,076. INDIVIDUAL ROOM AIR CONDITIONER. George D. Arnold, Peru, Ind. Application April 11, 1945, Serial No. 587,711. 2 Claims. (Cl. 219-39.)



1. An air conditioning unit including a housing provided with spaced tanks disposed transversely across its top and bottom and in the forward portion thereof, a series of tubes connected between said tanks, a water heating chamber in said lower tank spaced from its bottom, a series of inner tubes connected with said chamber and extending in spaced relation upwardly through said tanks, means for heating said fluid to provide a continuous circulation of heated fluid upwardly from the lower tank through said inner tubes to said upper tank and back down through said outer tubes, and means for directing air through heated tubes.

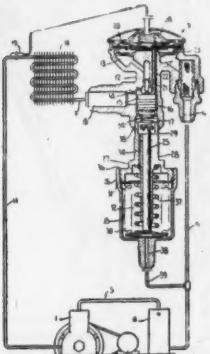
2,415,243. REFRIGERATION APPARATUS AND METHOD OF MAKING SAME. Charles E. Hickman, Adrian, Mich., as-



signer to Bohn Aluminum & Brass Corp., Detroit, Mich., a corporation of Michigan. Application Oct. 20, 1943, Serial No. 506,984. 10 Claims. (Cl. 62-8.)

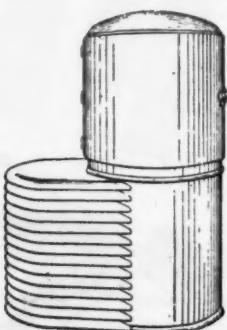
1. For use in refrigeration systems, a tube having a bore with a smooth inner wall, the inner diameter of the tube being too large to serve as a small bore restrictor, and a coil of wire having a passageway of substantially capillary size, said coil being inserted in said bore, the length of said coil being so correlated to the inner diameter of the passageway as to provide for the delivery of the desired amount of refrigerant.

2,415,338. REFRIGERATION SYSTEM AND EXPANSION VALVE THEREFOR. Franklyn Y. Carter, Dearborn, Mich., assignor to Detroit Lubricator Co., Detroit, Mich., a corporation of Michigan. Application April 20, 1945, Serial No. 589,330. 5 Claims. (Cl. 62-8.)



1. In a refrigerating system, means for limiting the load on the refrigerant compressor motor comprising a thermostatic expansion valve having a casing with an inlet and an outlet and a valve chamber, a valve member in said valve chamber, a spring in said valve chamber urging said valve member toward closed position and determining the superheat setting of said valve, means responsive to the difference between the refrigerant pressures on the system high pressure side and low pressure side, a thrust member engaging and supporting said spring and movable by said responsive means to compress said spring to increase the superheat setting of said valve, and a spring opposing movement of said thrust member by said responsive means and determining with said superheat determining spring the differential refrigerant pressure to move said thrust member.

146,314. DESIGN FOR A REFRIGERATOR. Willard L. Morrison, Lake Forest, Ill. Application June 9, 1945, Serial No. 119,993. Term of patent 14 years. (Cl. D67-3.)



The ornamental design for a refrigerator, substantially as shown and described. (To Be Continued)

## CLASSIFIED ADVERTISING

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RATES for all other classifications \$5.00 per insertion. Limit 50 words.

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## POSITIONS WANTED

SALES ENGINEER—desires to represent manufacturer or large distributor of refrigerated equipment. Employed at present, have excellent record, steady earnings each year up to \$15,000. Good connections, top references. BOX 2312, Air Conditioning & Refrigeration News.

MARRIED MAN, age 36, with family desires position with progressive refrigeration or air conditioning firm in a technical capacity. Have thorough knowledge acquired through technical training school and actual experience. Well qualified for parts man, catalogue work or sales department. With additional training would make good factory representative. BOX 2315, Air Conditioning & Refrigeration News.

EXECUTIVE TYPE sales engineer, age 43, graduate engineer educated both Ga. Tech and M.I.T. Over ten years sales experience southern states selling instruments and controls to Industrials, Utilities, Refrigeration jobbers, etc. Large southern territory preferred. Will represent nationally recognized manufacturer only. BOX 2318, Air Conditioning & Refrigeration News.

## POSITIONS AVAILABLE

WANTED—EXPERIENCED refrigeration countermen. Good opportunity for advancement. Apply in own handwriting, stating jobbing and any other experience, education, and starting salary required. Applications will be treated strictly confidentially. J. M. OBERC, INC., 904 W. Baltimore, Detroit 2, Mich.

WANTED SALESMAN, experienced, to sell commercial refrigeration. Home and farm frosted food cabinets, ice cream cabinets, & soda fountains for National concern. Virginia, West Virginia, and Ohio. Draw against commission. Dealers in territory now handling our equipment. REFRIGERATION PRODUCTS CORP., 318 Broad (Verbeke) St., Harrisburg, Pa.

SERVICE MANAGER, sales order manager, wanted by large National organization. Extensive commercial and domestic refrigeration experience required. Salary open. Submit resumes in confidence. BOX AC 1221, 113 West 42nd St., New York 18, N. Y.

6 COMMERCIAL REFRIGERATION specimens needed by large long-established installation and service organization in Chicago. Permanent positions with steady annual earnings. \$1.95 per hour with time and a half over forty hours and car allowance. Must have a car. Give full experience and back-ground. BOX 2329, Air Conditioning & Refrigeration News.

SERVICE MANAGER: Large exclusive commercial sales and service organization requires the services of a competent service manager on a full charge basis. Service area is in the Los Angeles metropolitan area. Write a summary of your experience, past earning capacity and references. Address BOX 2317, Air Conditioning & Refrigeration News.

HEATING SALES manager with one of the major heating and air conditioning organizations in metropolitan area. Must have experience in supervising dealers and salesmen. Should be familiar with application in metropolitan area. Substantial starting salary with good future. BOX 2319, Air Conditioning & Refrigeration News.

## EQUIPMENT FOR SALE

MOTORS AND condensing units—available at once— $\frac{1}{2}$ — $\frac{1}{4}$ — $\frac{1}{3}$ — $\frac{1}{2}$  Universal condensing units with or without motors. Special—six hole ice-cream cabinets with  $\frac{1}{4}$  hp. Copeland units less motors \$225. Also beverage coolers, beer equipment, stainless steel reach-in freezers. ALBROD CORP., 319 West 48th St., New York City 19, CI 6-9100.

20 UNITS ARMY surplus used for cooling radar tubes. Suitable for air conditioning units, unit heaters. Radiator 28 inches square, one HP. 11g blower. Ingersoll-Rand moto pump. Cost Government \$950.00. Complete with thermostatic controls, thermometer. \$175.00 shipping weight 1000 pounds. ALL OFFICE MACHINES CO., 4636 W. Washington, Chicago, Ill.

IMMEDIATE DELIVERY—new air conditioning equipment. Weathermakers complete with motor, "Freon" coil, etc. 2 ton to 25 ton. SWSI, DWDI, and twin centrifugal blowers, propeller fans, heating and cooling coils, evaporative condensers, self-contained air conditioning units, condensing units. CONTROLDTTEMP CORP., 236 Butler St., Brooklyn 17, N. Y.

CONDENSING UNITS (Genuine)  $\frac{1}{4}$  and  $\frac{1}{2}$ -hp. complete. Write for particulars and prices. Good quantities available. DRAFT-MASTER REFRIGERATION, INC. Designers-Manufacturers, 1703-5 W. Baltimore St., Baltimore 23, Md. Gilmor 2185-EDmondson 4542.

FOR SALE—AC motor  $\frac{1}{4}$  to 3 hp. single and 3 phase, list price. Immediate delivery. EDISON COOLING CORP., 310 E. 149th St., Bronx 51, N. Y.

BEER DISPENSING equipment—direct draw systems, 3-4-6 keg capacity. Beverage coolers, beer dispensers for air-duct and Temprite systems. Beer pumps. Immediate deliveries. Dealers wanted for New Jersey, New York and Pennsylvania. EXCELSIOR MACHINE CO., 2601 Kutztown Road, Reading, Pa.

STAINLESS STEEL reach-ins, 20 cu. ft. with ice maker, less unit, \$320.00. 30 cu. ft. panel blower type less unit, \$349.00. F.O.B. Raleigh, N. C. FIRST COLONY

DISTRIBUTORS, INC., Raleigh, N. C. A. J. Edmundson, General Manager. Phone 6018.

QUALITY BOTTAIL fountains; reach-ins, walk-in boxes—wood, metal; dough retarders; double duty cases—stainless steel, porcelain; dairy, florist, bakery cases; ice cream hardening cabinets; thermopane frozen food cases; milk, sandwich coolers; stainless steel back bars; with machines. Equipment made to special order. FRIGITEMP CORP., 931 Bergen St., Brooklyn 16, MA 2-9093.

DEHUMIDIFIERS FOR sale—#6 Bryant silica-gel dehumidifier, #6 dry air cooler, automatic Solenoid water valve, dehumidistat, suitable for room 25' x 25' x 12'. Also #4-R Bryant silica-gel dehumidifier air cooling coil, fan, motors; temperature and humidity controls, distribution ducts. Immediately available. MASTER RULE CO., 201 Main St., White Plains, N. Y.

1000 MOTORS, FOR sale, from stock  $\frac{1}{2}$  hp.—3425 RPM—3 ph/230 V. (Under-rated—easily equal to  $\frac{1}{4}$  hp.) Ballbearing, for vertical or horizontal. Enclosed Fr.  $\frac{1}{4}$  in. shaft. \$36 each. This rugged motor cannot burn out. (Glass insulated wire coils.) MODERN SUPPLY CO., 206 Fulton St., New York 7—CO 7-0100.

COMPRESSORS AND PARTS rebuilding—Compressors, float valves, water valves, low pressure controls, evaporators, water cooled condensers, condensing units and many other items replaced from our large stocks, or repaired upon receipt of your defective material. Send for our catalog—prices listed. REFRIGERATION MAINTENANCE CORP., 321 E. Grand Ave., Chicago, Ill.

SECTIONAL WALK-IN Coolers, Kiln dried fir front, spruce interior. Chrome hardware, metal saddle, finished shellac \$1.40 per sq. ft. Cork insulation prices on request. Limited number new refrigerator units, coils, etc. available. Send us your requirements. REFRIGERATION SPECIALTIES, INC., 721 Flushing Ave., Brooklyn 6, N. Y.

CAPILLARY TUBES. Part No. 1140. One model fits all household units up to and including  $\frac{1}{2}$  HP SO2, Methyl, "Freon." Has proper inside diameter and length, thus allowing unit to operate satisfactorily without high head pressure. \$1.10 each. Write for bulletin No. 14 listing parts for sealed units. SEALED UNIT PARTS CO., 3097 Third Ave., New York 56, N. Y.

FLOAT REPLACEMENTS. For replacing defective high side floats on all household units. Regular charging connection, capillary tube setup, internal strainer and exact mounting plate. Part #2000-Westinghouse (4 hole plate), and #2010 (3 hole plate): Part #2020-Gibson Part #2030-General Electric (DR-1 & DR-2). Part #2040-For general replacement (undrilled plate). \$6.75 each. SEALED UNIT PARTS CO., 3097 Third Ave., New York 56.

SEALED CROSLEY TERMINALS. Installed from the outside in a few minutes without opening the compressor. Corrects leaky terminals on all Crosley "F-12" units. Set of three \$6.75 (Part No. 1020). Installation tool \$1.65. Immediate delivery. Money-back guarantee. SEALED UNIT PARTS CO., 3097 Third Ave., New York 56, N. Y.

FOR SALE: Isobutane refrigerant. Price small lots—\$1 per pound; in lots of 100 pounds, 65 cents per pound. Freez-O, a perfect refrigerant for Frigidaire Meter Miser—price in small lots \$1.50 per pound; lots of 100 pounds \$1 per pound. Send your cylinders to STANDARD REFRIGERATION CO., McKees Rocks, Pa.

40 G. E. MOTORS 32 volt D.C. 1725 RPM  $\frac{1}{4}$  HP new in original package—\$34.85 each. Delivery from stock. 44 cubic foot  $\frac{1}{4}$  door United reachin refrigerators with blower coil and  $\frac{1}{4}$  HP Mills condensing units \$460.00. TALBERT-THOMAS CO., 2467 South Michigan Ave., Chicago, Ill.

SECTIONAL WALK-IN boxes; walk-in reachin boxes; condensing units  $\frac{1}{4}$  to 10 HP; blower coils; all metal reachin boxes 32-40-60-80 cu. ft., solid and glass doors; 6' beverage coolers unitized; 6' all stainless steel beverage coolers remote. VIKING SALES CORPORATION, 1481 West Washington Blvd., Los Angeles 12, Calif.

WANTED GRUNOW units & compressors—any condition. BOX 2281, Air Conditioning & Refrigeration News.

ICE-REFRIGERATED BOTTLE coolers—new 4'-5'-6' lengths—24" wide  $3\frac{1}{2}$ " high capacities 324, 402 and 480—12 oz. bottles. Heavily constructed all-steel, galvanized liner. Priced right—reasonable quantities for immediate deliveries. Wire or write BOX 2293, Air Conditioning & Refrigeration News.

ARE YOU interested in procuring a minimum of 10,000 fractional HP motors—refrigeration duty—guaranteed delivery—10% in 30 days—balance monthly? Manufacturer is an old line company. Price in line with present conditions. Curiosity seekers don't waste your time! BOX 2316, Air Conditioning & Refrigeration News.

## FRANCHISES WANTED

WELL ESTABLISHED firm in South Africa with branches throughout the Country and large and modern workshops require franchise for that Country of domestic refrigerators, oil-burner refrigerators and electric stoves. Write to BOX 2292, Air Conditioning & Refrigeration News.

## FRANCHISEES AVAILABLE

TERRITORY NOW available in states east of Mississippi River. Complete line of Jaden Golden Rod air conditioning and heating equipment. We can deliver. America's fastest selling line of air conditioning equipment. TEMP-CONTROL INC., 208-210 East State St., Peoria, Ill.

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it's Dependable  
it's a . . . .

## General Refrigerator

Stainless Steel Exterior &amp; Interior Complete with Units

We MANUFACTURE a complete line of:  
• HOME & FARMS FREEZERS • DRY BEVERAGE COOLERS  
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## WAA Offers 2,340 Unused, Non-Freeze Steam Coils For Sale in Pennsylvania

WASHINGTON, D. C.—Government surplus stocks of unused, non-freeze heating coils for steam pressures up to 150 pounds p.s.i. will be offered for sale to all trade levels including exporters at low fixed prices ranging upward from \$24.60 each, f.o.b. Mechanicsburg, Pa. The offering will open this month.

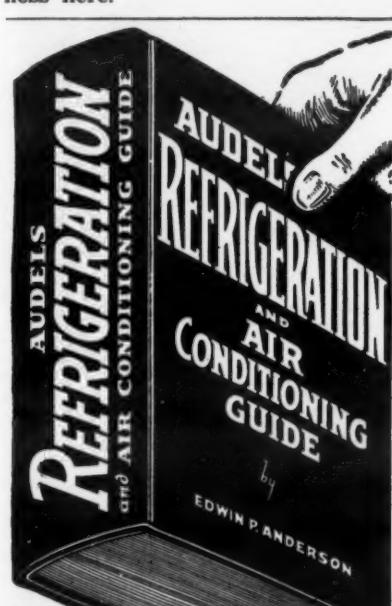
The coils, which consist of  $\frac{1}{2}$ -in. tubes within  $\frac{1}{2}$ -in. tubes, were originally used by the Navy as ventilation heaters for ships and are adaptable for many heating, ventilating, air conditioning, processing, and drying uses, War Assets Administration said. Tubes and fins are copper and the steel casings have drilled flanges on all sides for easy attachment of ductwork or for bolting the sections together.

Limited quantities of 10 sizes make up the total of 2,340 heaters in the offering. Included are 650 units weighing 72 pounds each with approximate casing dimensions of  $15\frac{1}{4} \times 32 \times 7$  in., made to Navy Specification No. T-29-H and priced at \$24.60 each. The largest, heaviest, and highest priced type with casing measuring  $36\frac{1}{4} \times 59 \times 7$  in., weighs 245 pounds and is offered at \$70.60.

Representative heating coils may be inspected at WAA customer service centers in Boston, Philadelphia, New York City, Washington, D. C., and at the Naval Supply Depot, Mechanicsburg, Pa.

### New Frozen Food Firm Opens

PERRY, Fla.—A new \$50,000 enterprise, the Taylor Country Frozen Food Co., has opened for business here.



**\$4 COMPLETE** PAY ONLY \$1 A MO.

AUDELS REFRIGERATION & AIR CONDITIONING GUIDE Answers Your Questions on Basic Principles, Servicing, Operation and Repair of Household Refrigeration—Special Refrigeration Units—Commercial and Industrial Refrigeration—Air Conditioning Systems—Over 1200 Pages, 46 Chapters, 700 Illustrations—Diagrams including data on Freon, Quick Freezing, Lockers and Water Coolers. A new timely book containing practical facts and figures for Better Service. Easy to understand and Handy Ready Reference.

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Employed by \_\_\_\_\_

### Promoted at G-E



J. L. KNIGHT  
Erie works engineer.



L. W. ATCHISON  
Assistant works engineer,  
Household refrigerator division.  
\* \* \*

### Knight, Atchison Move Up In G-E Engineering Posts

ERIE, Pa.—Appointment of J. L. Knight as Erie Works engineer and L. W. Atchison as assistant works engineer of the General Electric Co.'s household refrigerator division has been announced by L. H. Miller, division manager.

At the same time, Mr. Miller announced the retirement, because of ill health, of D. F. Newman, former refrigerating unit engineer of the division.

Mr. Knight, who becomes responsible for refrigerator unit and cabinet and home freezer engineering, joined General Electric in 1926 following graduation from Carnegie Tech. After working on refrigerator tests for a year, he entered the refrigerator engineering section, and in 1931 was appointed engineer of the refrigerator cabinet engineering section, which he headed until his recent appointment.

A graduate of Montana State College, Mr. Atchison came with General Electric in 1924 and filled various assignments until he was transferred to the refrigeration engineering section four years later. In 1943 he was appointed design engineer and a year later, assistant engineer.

Mr. Newman entered General Electric's Schenectady, N. Y., mailing section in 1907 at the age of 14. Six years later he was graduated from the company's apprentice course as a pattern maker, was soon transferred to the tool design section of the mechanical superintendent's office. Here he first became closely associated with the development of the G-E hermetically sealed refrigerating unit.

In 1925, when the household refrigerator division was established in Schenectady, Mr. Newman became an engineer in the refrigerator unit section. He was appointed assistant engineer of the section in 1943 and engineer a year later.

### Leland Appoints E.C. Wickersham

DAYTON, Ohio—E. C. Wickersham has been appointed assistant sales manager of the Leland Electric Co. here, W. F. Lisman, president, announced recently.

Mr. Wickersham was formerly application engineer for the company. He has been with Leland since 1939.

## Lamp-Shaped 'Luminaire' Room Conditioner Has Fan in Dome, Condensing Unit in Base

WASHINGTON, D. C.—"Luminaire," a water-cooled room air conditioner with some unusual features, is being put into increased production, according to William A. Smylie, general sales manager of Parlong Air Conditioning Corp. here, national distributor of the appliance.

"Luminaire," which was placed in test installations last summer, combines a fluorescent lighting fixture with the air conditioning and provides for the use of a Sterilamp in the lighting unit, he said.

The unit is said to be a development of Harold B. Parker, who now heads the "Luminaire" engineering and technical staff.

Looking like an oversized floor lamp, it has the air inlet and outlet louvers, cooling coils, fan, and  $\frac{1}{2}$ -hp. fan motor in the dome. The hermetically sealed condensing unit,  $\frac{1}{2}$ -hp. motor, and controls are in the base. Both base and dome are insulated.

The unit stands 69 in. high and has a base diameter of 23 in.

It is said to cool up to 450 sq. ft. of normal floor area regardless of ceiling height. Cubic measurements of the room need not be considered, according to Mr. Smylie, because the unit makes no attempt to cool hot, stratified air at the ceiling level.

Using low velocity air flow at the "breathing level" increases the cooling and air cleaning capacity of "Luminaire" and eliminates draft, Mr. Smylie stated.

In laboratory tests, "Luminaire" has removed moisture from the air at the rate of 5 gals. every 24 hours at  $90^{\circ}$  DB and  $75^{\circ}$  WB, he asserted.

It dehumidifies, cools, and circulates the air by thermostatic control, he said. Two heavy duty switches operate both the air conditioning and lighting units, he added.

"Freon" is used as the refrigerant.

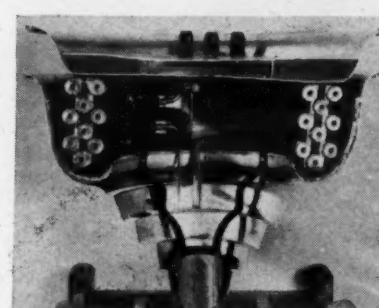
The base assembly is easily accessible for inspection, adjustment, and replacement of parts.

For installation, "Luminaire" must only be tied into convenient water and drain connections and plugged into an electrical outlet.

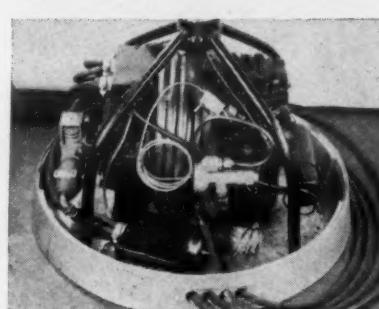
Plans are now being made to offer "Luminaire" in the United States through local dealers, he said.



Resembling a lamp "Luminaire" is a room conditioner capable of cooling 450 sq. ft. of floor area.



Cutaway of the dome assembly.



View of the base, shield removed.

### West Penn Power Appointments

Name H. E. King, H. T. Dutcher

PITTSBURGH—H. E. King, senior commercial customer representative in West Penn Power Co.'s Eastern division, with headquarters at Greensburg, Pa., has been promoted to supervisor in the commercial customer department and will be located at Pittsburgh.

H. T. Dutcher, Jr. is promoted to senior representative at Greensburg, replacing Mr. King.

## WANTED

### A field representative

To call on our distributor organization. Must have executive ability, practical experience in application engineering and sales ability. Residence in St. Louis, Missouri required. Give full particulars as to qualifications, reference and salary expected. Include photograph. Hussmann Refrigeration, Inc., 2401 North Leffingwell, St. Louis 6, Missouri.

## ALUMINUM SHEETS

Quantity of 3S  $\frac{1}{2}$  hard 36 x 96 sheets available in .032 and .040 thicknesses for immediate shipment from Dallas stock. Telephone: Riverside 4536, Dallas, Texas, Mr. Brown.

## TECHNICAL ENGINEER ON REFRIGERATION

About next September I plan to come to the United States and would like to serve with an important refrigeration firm.

I have been engaged in refrigeration installations for several years and hold two patents in France.

For further information write:

EDMOND VANDIEVOET  
7 rue de la Mer  
Trouville, France

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Recognized as quality products SHERER

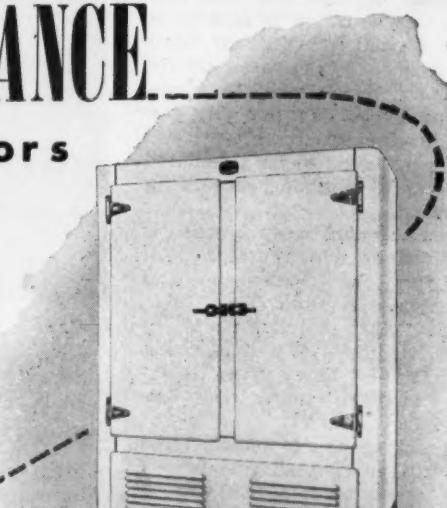
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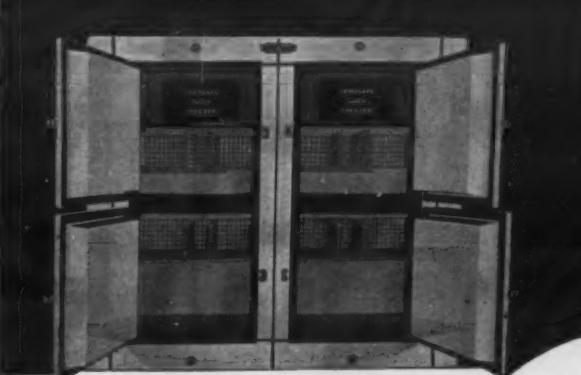
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## SINCE 1939...ZEROSAFE by WILSON



THE GREAT NAME IN FREEZER DESIGN

SINCE 1939 Wilson ZEROSAFE has been the greatest reach-in farm freezer in America... THE NEW WILSON ZEROSAFE IS NOW GREATER THAN EVER BEFORE... Not a toy, but big, ruggedly beautiful, efficient, with stamina for years of low-cost operation.

SIZES FOR EVERY NEED  
FROM 15 TO 120 CU. FT.

FOR FRANCHISE INFORMATION ADDRESS DEPT. II: WILSON REFRIGERATION, INC., SMYRNA, DELAWARE

## New Technique

## DON'T BUY

ANY Radio or Appliance When Prices May Go Down—Until You Read Every Word of This Sensational Offer!

With Every Purchase from April 1, 1947 on, we will give a Certificate of L. K. WARD'S PROTECTIVE PRICE PLAN, guaranteeing to pay you the amount of any price drop on that article during 1947!

"We do hereby agree to refund in cash, unconditionally, the full difference between the purchase price paid for any appliance and the reduced price on the same article, if any, occurring during 1947 on ANY APPLIANCE, RADIO OR RADIO-PHONOGRAPH COMBINATION you may purchase at any store of L. K. Ward Stores, Inc., on or after April 1, 1947."

## FRANKLY—

We are making this offer because we do not anticipate a downward trend in our Radio or Appliance prices. We have already made necessary adjustments. OUR AVERAGE PRICE TODAY IS ACTUALLY LESS THAN THE PRICE PREVAILING UNDER O.P.A.

Therefore, we are willing to back our new conviction with this unique and sensational offer, so that you may have the Appliance or Radio you want now without paying more for a future price drop. If we are wrong, you will clearly be in the right. In either case, L. K. WARD PROTECTIVE PRICE PLAN will give the security feeling that the equipment you will get now by buying from us will be the best buy in Radio or Appliance that your home will make it worth while!

## BUY NOW WITH CONFIDENCE

- Protect Yourself Against Possible Price Increases
- Insure Yourself Against a Price Decrease
- Have the Best Now—We Sell Only the Leaders in

RANGES, REFRIGERATORS, WASHERS & IRONERS, RADIOS & COMBINATIONS, TELEVISION SETS, KITCHEN SINKS, STEEL CABINETS, WATER HEATERS, GAS FURNACES.



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1212 S. Western Ave., Fresno  
1212 S. Western Ave., Bakersfield  
1212 S. Western Ave., Modesto  
1212 S. Western Ave., Sacramento  
1212 S. Western Ave., Fresno  
1212 S. Western Ave., Bakersfield  
1212 S. Western Ave., Modesto

The type of newspaper advertisement used by Ward to promote its "protective price plan."

## Refund Price Plan--

(Concluded from Page 1, Column 2)

"Frankly, we are making this offer because we do not anticipate a downward trend in our radio or appliance prices," the store's announcement declared.

It added, "We have already made necessary adjustments and our average price today is actually less than prices prevailing under O.P.A."

The company, which claims to be America's largest retailer of home appliances, has 10 stores in the Los Angeles area, one in the San Francisco area, and one in the Palm Springs area.

## ASHVE Meeting--

(Concluded from Page 1, Column 3)

Pacific Ocean on one side and San Diego Bay on the other, is said to be offering a special schedule of rates for the meeting. These rates, on the American plan which includes meals, range from \$8 to \$11 per day per person, it is claimed.

Nine papers are to be presented at the technical sessions, according to Mr. Lowe.

On one afternoon, a golf meet is being planned at which golfers will compete for the Research and Eichberg Memorial cups.

Proposed trips include visits to Old Town, Ramona's Wedding Place, Balboa Park, the Navy Yard, Consolidated Aircraft plant in San Diego, and Old Mexico.

Sailing and deep sea fishing trips are also being arranged.

Special arrangements are being made for several railroad itineraries from the East which will include time for sightseeing at scenic points en route, Mr. Lowe declared.

Other members of the Southern California chapter of ASHVE assisting Mr. Lowe on arrangements are: Maron Kennedy, R. S. Farr, J. L. Blake, and Leo Hungerford.

Committee chairmen involved include: W. N. Fauley, finance; E. A. Guenther, reception and publicity; Bob Johnson, sports events; A. G. Orear, hotels and reservations; J. S. Earhart, outside entertainment; A. B. Banowsky, ladies; C. W. Pollock, local transportation; Vern Miller, special events; Maron Kennedy, inspection trips; and L. B. Davenport, industry committee.

## Beaver, of Worthington, Dies Suddenly In N.Y.

NEW YORK CITY—Harry C. Beaver, vice chairman of the Worthington Pump & Machinery Corp. board of directors, died here suddenly.

Associated with Worthington Pump for the past 16 years, Mr. Beaver was formerly president of the firm.

In February, 1931, he joined Worthington as vice president in charge of sales. He was elected vice chairman of the board of directors December, 1944, a post he held until his death.

## Anti-Trust--

(Concluded from Page 1, Column 2)

in court is greatly diluted when he is forced to share it with 50 or more other defendants.

"In a mass trial identity of the person is likely to become lost in confusion and a defendant is likely to be convicted for what another did."

There is no appeal from Judge Wilkin's decision.

Besides being the longest case—seven years and 11 days—and the costliest—estimated at nearly \$3,000,000—the action is said to be the first covering an entire industry on a nationwide basis and the first to name unions jointly with industry.

It is also said to involve the greatest number of defendants. Defendants were returned against 102

plumbing manufacturers, wholesalers, jobbers, master plumber groups, trade associations, plumbers' unions, and individuals on March 20, 1940.

Prosecution was postponed for the duration of the war in the interests of the war effort, but trial finally began on Nov. 18, 1946. Between the indictment and opening of the trial, nine defendants died, 16 entered pleas of nolo contendere and paid fines, and one was granted separation and continuance.

The Government presented evidence against the remaining 76 from Nov. 18 to Feb. 28, when it rested its case. Defendant counsel immediately filed a motion for dismissal of charges.

That motion was not contended by the Government in the case of five defendants and was sustained by Judge Wilkin for 13 others. The remaining 58 defendants were covered by Judge Wilkin's final decision.

## Feb. Durable Wholesale

## Volume Hits \$11,000,000

WASHINGTON, D. C.—Wholesalers' sales of durable goods in February, 1947, increased by \$11,000,000 over January, while sales of non-durables sank \$399,000,000 below the January figure, the U. S. Department of Commerce has reported.

Total sales by wholesalers in February amounted to \$4,738,000,000 as compared to \$5,137,000,000 the previous month, the department said. Of the February total, durable goods accounted for \$1,599,000,000 while non-durables equalled \$3,139,000,000.

In the durable line, electrical goods showed the greatest gain, the department noted. They rose \$39,000,000 from \$199,000,000 in January to \$238,000,000 in February.

Among the non-durables, food and farm products led the descent with a loss of \$144,000,000. January's total was \$533,000,000 and February's \$389,000,000, according to Commerce statistics.

Dollar sales in durable goods was up nearly % over a year ago, while non-durables showed an 11% increase over February, 1946, they revealed.

## Apex Sets New Output Record For First Quarter of 1947

CLEVELAND—Apex Electrical Mfg. Co. has set a new production record of 131,398 units for the first quarter of 1947, according to C. G. Frantz, president. This figure covers production of vacuum cleaners, washers, and ironers. Sales for March also set a new record of 48,885 units, it was reported.

## WHAT'S BEHIND THE BRICKS AND MORTAR?

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